

- fluoro-5-trifluoromethyl-2-benzofuryl group, 4-chloro-5-trifluoromethyl-2-benzofuryl group, 6-chloro-5-trifluoromethyl-2-benzofuryl group, 7-chloro-5-trifluoromethyl-2-benzofuryl group, 4-chloro-5-trifluoromethoxy-2-benzofuryl group, 6-chloro-5-trifluoromethoxy-2-benzofuryl group, 7-chloro-5-trifluoromethoxy-2-benzofuryl group, 3-benzofuryl group, 4-fluoro-3-benzofuryl group, 5-fluoro-3-benzofuryl group, 6-fluoro-3-benzofuryl group, 7-fluoro-3-benzofuryl group, 4-chloro-3-benzofuryl group, 5-chloro-3-benzofuryl group, 6-chloro-3-benzofuryl group, 7-chloro-3-benzofuryl group, 4-bromo-3-benzofuryl group, 5-bromo-3-benzofuryl group, 6-bromo-3-benzofuryl group, 7-bromo-3-benzofuryl group, 4-methyl-3-benzofuryl group, 5-methyl-3-benzofuryl group, 6-methyl-3-benzofuryl group, 7-methyl-3-benzofuryl group, 4-trifluoromethyl-3-benzofuryl group, 5-trifluoromethyl-3-benzofuryl group, 6-trifluoromethyl-3-benzofuryl group, 7-trifluoromethyl-3-benzofuryl group, 4-ethyl-3-benzofuryl group, 5-ethyl-3-benzofuryl group, 6-ethyl-3-benzofuryl group, 7-ethyl-3-benzofuryl group, 4-pentafluoroethyl-3-benzofuryl group, 5-pentafluoroethyl-3-benzofuryl group, 6-pentafluoroethyl-3-benzofuryl group, 7-pentafluoroethyl-3-benzofuryl group, 4-methoxy-3-benzofuryl group, 5-methoxy-3-benzofuryl group, 6-methoxy-3-benzofuryl group, 7-methoxy-3-benzofuryl group, 4-trifluoromethoxy-3-benzofuryl group, 5-trifluoromethoxy-3-

- benzofuryl group, 6-trifluoromethoxy-3-benzofuryl group, 7-trifluoromethoxy-3-benzofuryl group, 4-isopropyl-3-benzofuryl group, 5-isopropyl-3-benzofuryl group, 6-isopropyl-3-benzofuryl group, 7-isopropyl-3-benzofuryl group, 4-hexyl-3-benzofuryl group, 5-hexyl-3-benzofuryl group, 6-hexyl-3-benzofuryl group, 7-hexyl-3-benzofuryl group, 4-ethoxy-3-benzofuryl group, 5-ethoxy-3-benzofuryl group, 6-ethoxy-3-benzofuryl group, 7-ethoxy-3-benzofuryl group, 4-fluoro-5-trifluoromethyl-3-benzofuryl group, 6-fluoro-5-trifluoromethyl-3-benzofuryl group, 7-fluoro-5-trifluoromethyl-3-benzofuryl group, 4-chloro-5-trifluoromethyl-3-benzofuryl group, 6-chloro-5-trifluoromethyl-3-benzofuryl group, 7-chloro-5-trifluoromethyl-3-benzofuryl group, 4-chloro-5-trifluoromethoxy-3-benzofuryl group, 6-chloro-5-trifluoromethoxy-3-benzofuryl group, 6,7-dichloro-5-trifluoromethoxy-3-benzofuryl group, 5,6,7-trichloro-2-benzofuryl group, 7-chloro-5-trifluoromethoxy-3-benzofuryl group or the like.

A furyl group (which may be substituted on the furan ring by a phenyl group which may have a halogen atom as a substituent) includes a furyl group (which may be substituted on the furan ring by 1 to 3 phenyl groups which may have 1 to 5 halogen atoms as a substituent), for example, a 2-furyl group, 3,5-diphenyl-2-furyl group, 2,4,5-triphenyl-3-furyl group, 5-(4-chlorophenyl)-2-furyl group, 4-(4-fluorophenyl)-2-

furyl group, 4-(2,3,4,5,6-pentafluorophenyl)-2-furyl group, 3-(4-bromophenyl)-2-furyl group, 3-furyl group, 5-(2,4-dichlorophenyl)-3-furyl group, 4-(2,4,6-trichlorophenyl)-3-furyl group, 3-(4-iodophenyl)-3-furyl group or the like.

A phenyl group (which may be substituted on the phenyl ring by at least one group selected from a group consisting of a halogen atom; halogen-substituted or unsubstituted C1-6 alkyl group; C3-8 cycloalkoxy group; hydroxyl group; halogen-substituted or unsubstituted C1-8 alkoxy group; C3-8 cycloalkoxy group; C1-4 alkylenedioxy group; cyano group; nitro group; phenyl C2-6 alkenyl group; C2-6 alkanoyloxy group; amino group having a C1-6 alkanoyl group as a substituent; C1-6 alkylsulfonylamino group; phenyl C1-6 alkoxy group; phenoxy group; amino group having at least one C1-6 alkyl group as a substituent; amino group which may have at least one phenyl group as a substituent; amino C1-6 alkoxy group which may have at least one C1-6 alkyl group on the amino group as a substituent; C1-6 alkoxycarbonyl group; C1-6 alkoxycarbonyl C1-6 alkoxy group; C1-6 alkylthio group; pyrrolyl group; imidazolyl group; piperidyl group; morpholino group; pyrrolidinyl group; thienyl group; benzofuryl group; piperazinyl group (which may be substituted on the piperazine ring by at least one group selected from a group consisting of a C1-6 alkyl group, phenyl C1-6 alkyl group and benzoyl group which

may have at least one C1-6 alkyl group as a substituent); quinolyl group which may be substituted on the quinoline ring by at least one group selected from a group consisting of a C1-6 alkoxy group and an

5 oxo group; a piperidylcarbonyl group which may be substituted on the piperidine ring by a carbostyryl group; and a triazolyl group) includes a phenyl group (which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups selected from a group

10 consisting of a halogen atom; halogen-substituted or unsubstituted C1-6 alkyl group; C3-8 cycloalkoxy group; hydroxyl group; halogen-substituted or unsubstituted C1-8 alkoxy group; C3-8 cycloalkoxy group; C1-4 alkylenedioxy group; cyano group; nitro group; phenyl

15 C2-6 alkenyl group; C2-6 alkanoyloxy group; amino group which may have 1 to 2 C1-6 alkanoyl groups as a substituent; C1-6 alkylsulfonylamino group; phenyl C1-6 alkoxy group; phenoxy group; amino group having 1 to 2 C1-6 alkyl groups as a substituent; amino group having

20 1 to 2 phenyl groups as a substituent; amino C1-6 alkoxy group which may have 1 to 2 C1-6 alkyl groups on the amino group as a substituent; C1-6 alkoxycarbonyl group; C1-6 alkoxycarbonyl C1-6 alkoxy group; C1-6 alkylthio group; pyrrolyl group; imidazolyl group;

25 piperidinyll group; morpholino group; pyrrolidinyl group; thienyl group; benzofuryl group; piperazinyl group (which may be substituted on the piperazine ring by at least one group selected from a group consisting

of a C1-6 alkyl group, phenyl C1-6 alkyl group and benzoyl group which may have 1 to 3 C1-6 alkyl group as a substituent); quinolyl group which may be substituted on the quinoline ring by at least one group selected from a group consisting of a C1-6 alkoxy group and an oxo group; a piperidylcarbonyl group which may be substituted on the piperidine ring by a carbostyryl group; and a triazolyl group (in case of a 1 to 3 C1-4 alkylenedioxy group as a substituent, 1 to 3 substituents are preferable)), for example, a phenyl group, 2-fluorophenyl group, 3-fluorophenyl group, 4-fluorophenyl group, 2-chlorophenyl group, 3-chlorophenyl group, 4-chlorophenyl group, 2-bromophenyl group, 3-bromophenyl group, 4-bromophenyl group, 2-iodophenyl group, 3-iodophenyl group, 4-iodophenyl group, 2,3-difluorophenyl group, 3,4-difluorophenyl group, 3,5-difluorophenyl group, 2,4-difluorophenyl group, 2,6-difluorophenyl group, 2,3-dichlorophenyl group, 3,4-dichlorophenyl group, 3,5-dichlorophenyl group, 2,4-dichlorophenyl group, 2,6-dichlorophenyl group, 2,3,4-trifluorophenyl group, 3,4,5-trifluorophenyl group, 3,4,5-trichlorophenyl group, 2,4,6-trifluorophenyl group, 2,3,4,5,6-pentafluorophenyl group, 2,4,6-trichlorophenyl group, 2-fluoro-4-chlorophenyl group, 2-fluoro-4-bromophenyl group, 3-fluoro-4-chlorophenyl group, 2-methylphenyl group, 3-methylphenyl group, 4-methylphenyl group, 2,6-dimethylphenyl group, 2,4,6-trimethylphenyl group, 2-

- methyl-3-chlorophenyl group, 3-methyl-4-chlorophenyl
 group, 2-chloro-4-methylphenyl group, 2-methyl-3-
 fluorophenyl group, 2-trifluoromethylphenyl group, 3-
 trifluoromethylphenyl group, 4-trifluoromethylphenyl
 5 group, 3,5-di(trifluoromethyl)phenyl group, 3,4-
 di(trifluoromethyl)phenyl group, 2,4-di(trifluoro-
 methyl)phenyl group, 2-pentafluoroethylphenyl group, 3-
 pentafluoroethylphenyl group, 4-pentafluoroethylphenyl
 group, 2-isopropylphenyl group, 3-isopropylphenyl
 10 group, 4-isopropylphenyl group, 2-tert-butylphenyl
 group, 3-tert-butylphenyl group, 4-tert-butylphenyl
 group, 2-sec-butylphenyl group, 3-sec-butylphenyl
 group, 4-sec-butylphenyl group, 4-n-butylphenyl group,
 4-n-pentylphenyl group, 4-n-hexylphenyl group, 2-n-
 15 heptafluoropropylphenyl group, 3-n-heptafluoropropyl-
 phenyl group, 4-n-heptafluoropropylphenyl group, 4-
 pentylphenyl group, 4-hexylphenyl group, 2-methoxy-
 phenyl group, 3-methoxyphenyl group, 4-methoxyphenyl
 group, 2-methoxy-3-chlorophenyl group, 2-fluoro-3-
 20 methoxyphenyl group, 2-fluoro-4-methoxyphenyl group, 4-
 cyclopropylphenyl group, 4-cyclobutylphenyl group, 4-
 cyclopentylphenyl group, 4-cyclohexylphenyl group, 4-
 cycloheptylphenyl group, 4-cyclooctylphenyl group, 2,6-
 dimethoxyphenyl group, 2-trifluoromethoxyphenyl group,
 25 3-trifluoromethoxyphenyl group, 4-trifluoromethoxy-
 phenyl group, 2,3-di(trifluoromethoxy)phenyl group,
 3,5-di(trifluoromethoxy)phenyl group, 2,4-di(trifluoro-
 methoxy)phenyl group, 2-pentafluoroethoxyphenyl group,

- 3-pentafluoroethoxyphenyl group, 4-pentafluoroethoxyphenyl group, 2-isopropoxyphenyl group, 3-isopropoxyphenyl group, 4-isopropoxyphenyl group, 2-tert-butoxyphenyl group, 3-tert-butoxyphenyl group, 4-tert-butoxyphenyl group, 2-sec-butoxyphenyl group, 3-sec-butoxyphenyl group, 4-sec-butoxyphenyl group, 4-n-hexyloxyphenyl group, 4-n-heptyloxyphenyl group, 4-n-octyloxyphenyl group, 2-n-heptafluoropropoxyphenyl group, 3-n-heptafluoropropoxyphenyl group, 4-n-heptafluoropropoxyphenyl group, 4-cyclopropoxyphenyl group, 4-cyclobutoxyphenyl group, 4-cyclopentoxyphenyl group, 4-cyclohexyloxyphenyl group, 4-cycloheptyloxyphenyl group, 4-cyclooctyloxyphenyl group, 4-pentoxyphenyl group, 4-hexyloxyphenyl group, 2-hydroxyphenyl group, 3-hydroxyphenyl group, 4-hydroxyphenyl group, 2,4-dihydroxyphenyl group, 2,4,6-trihydroxyphenyl group, 2-methoxy-3-chlorophenyl group, 2-fluoro-3-hydroxyphenyl group, 2-fluoro-4-hydroxyphenyl group, 2,3-methylenedioxyphenyl group, 3,4-methylenedioxyphenyl group, 2,3-ethylenedioxyphenyl group, 3,4-ethylenedioxyphenyl group, 2-cyanophenyl group, 3-cyanophenyl group, 4-cyanophenyl group, 2,3-dicyanophenyl group, 2,4,6-tricyanophenyl group, 2-nitrophenyl group, 3-nitrophenyl group, 4-nitrophenyl group, 2,4-dinitrophenyl group, 2,4,6-trinitrophenyl group, 2-cinnamylphenyl group, 3-cinnamylphenyl group, 4-cinnamylphenyl group, 2-acetyloxyphenyl group, 3-acetyloxyphenyl group, 2-aminophenyl group, 2,4-

diaminophenyl group, 2,4,6-triaminophenyl group, 4-
 acetyloxyphenyl group, 2-propionyloxyphenyl group, 3-
 propionyloxyphenyl group, 4-propionyloxyphenyl group,
 2-butyryloxyphenyl group, 3-butyryloxyphenyl group, 4-
 5 butyryloxyphenyl group, 4-pentanoyloxyphenyl group, 4-
 hexanoyloxyphenyl group, 2-acetylaminophenyl group, 3-
 acetylaminophenyl group, 4-acetylaminophenyl group, 2-
 propionylaminophenyl group, 3-propionylaminophenyl
 group, 4-propionylaminophenyl group, 2-butyrylamino-
 10 phenyl group, 3-butyrylamino-phenyl group, 4-
 butyrylamino-phenyl group, 4-pentanoylamino-phenyl group,
 4-hexanoylamino-phenyl group, 2-methanesulfonylamino-
 phenyl group, 3-methanesulfonylamino-phenyl group, 4-
 methanesulfonylamino-phenyl group, 2-benzyloxyphenyl
 15 group, 3-benzyloxyphenyl group, 4-benzyloxyphenyl
 group, 2-(2-phenylethoxy)phenyl group, 3-(2-
 phenylethoxy)phenyl group, 4-(2-phenylethoxy)phenyl
 group, 2-(3-phenylpropoxy)phenyl group, 3-(3-
 phenylpropoxy)phenyl group, 4-(3-phenylpropoxy)phenyl
 20 group, 2-(4-phenylbutoxy)phenyl group, 3-(4-
 phenylbutoxy)phenyl group, 4-(4-phenylbutoxy)phenyl
 group, 2-(5-phenylpentoxy)phenyl group, 3-(5-
 phenylpentoxy)phenyl group, 4-(5-phenylpentoxy)phenyl
 group, 2-(6-phenylhexloxy)phenyl group, 3-(6-
 25 phenylhexloxy)phenyl group, 4-(6-phenylhexloxy)phenyl
 group, 2-phenoxyphenyl group, 3-phenoxyphenyl group, 4-
 phenoxyphenyl group, 2-methylaminophenyl group, 3-
 ethylaminophenyl group, 4-propylaminophenyl group, 2-n-

butylaminophenyl group, 3-n-pentylaminophenyl group, 4-
 n-hexylaminophenyl group, 2-dimethylaminophenyl group,
 3-dimethylaminophenyl group, 4-dimethylaminophenyl
 group, 2-diethylaminophenyl group, 3-diethylaminophenyl
 5 group, 4-diethylaminophenyl group, 2-di-(n-propyl)-
 aminophenyl group, 3-di-(n-propyl)aminophenyl group, 4-
 di-(n-propyl)aminophenyl group, 3-phenylaminophenyl
 group, 2-diphenylaminophenyl group, 3-diphenylamino-
 phenyl group, 4-diphenylaminophenyl group, 2-(2-
 10 methylaminoethoxy)phenyl group, 3-ethylaminomethoxy-
 phenyl group, 2-(2-dimethylaminoethoxy)phenyl group, 3-
 (2-dimethylaminoethoxy)phenyl group, 4-(2-dimethyl-
 aminoethoxy)phenyl group, 2-(3-dimethylaminopropoxy)-
 phenyl group, 3-(3-dimethylaminopropoxy)phenyl group,
 15 4-(3-dimethylaminopropoxy)phenyl group, 4-(4-
 dimethylaminobutoxy)phenyl group, 4-(5-dimethylamino-
 pentoxy)phenyl group, 4-(6-dimethylaminohexyloxy)phenyl
 group, 2-(2-diethylaminoethoxy)phenyl group, 3-(2-
 diethylaminoethoxy)phenyl group, 4-(2-diethylamino-
 20 ethoxy)phenyl group, 2-(3-diethylaminopropoxy)phenyl
 group, 3-(3-diethylaminopropoxy)phenyl group, 4-(3-
 diethylaminopropoxy)phenyl group, 4-(4-diethylamino-
 butoxy)phenyl group, 4-(5-diethylaminopentoxy)phenyl
 group, 4-(6-diethylaminohexyloxy)phenyl group, 2-
 25 methoxycarbonylphenyl group, 3-methoxycarbonylphenyl
 group, 4-methoxycarbonylphenyl group, 2-ethoxycarbonyl-
 phenyl group, 3-ethoxycarbonylphenyl group, 4-
 ethoxycarbonylphenyl group, 4-(3-propoxycarbonyl)phenyl

group, 4-(4-butoxycarbonyl)phenyl group, 4-(5-pentoxycarbonyl)phenyl group, 4-(6-hexyloxycarbonyl)-phenyl group, 2-methoxycarbonylmethoxyphenyl group, 3-methoxycarbonylmethoxyphenyl group, 4-methoxycarbonyl-

5 methoxyphenyl group, 2-ethoxycarbonylmethoxyphenyl group, 3-ethoxycarbonylmethoxyphenyl group, 4-ethoxycarbonylmethoxyphenyl group, 4-(3-propoxycarbonyl)methoxyphenyl group, 4-(4-butoxycarbonyl)-methoxyphenyl group, 4-(5-pentoxycarbonyl)methoxyphenyl

10 group, 4-(6-hexyloxycarbonyl)methoxyphenyl group, 4-(2-methoxycarbonylethoxy)phenyl group, 4-(2-ethoxycarbonyl)ethoxyphenyl group, 4-(2-(3-propoxycarbonyl)-ethoxy)phenyl group, 4-(2-(4-butoxycarbonyl)ethoxy)-phenyl group, 4-(2-(5-pentoxycarbonyl)ethoxy)phenyl

15 group, 4-(2-(6-hexyloxycarbonyl)ethoxy)phenyl group, 4-(3-methoxycarbonylpropoxy)phenyl group, 4-(3-(2-ethoxycarbonyl)propoxy)phenyl group, 4-(3-(3-propoxycarbonyl)propoxy)phenyl group, 4-(3-(4-butoxycarbonyl)-propoxy)phenyl group, 4-(3-(5-pentoxycarbonyl)propoxy)-

20 phenyl group, 4-(3-(6-hexyloxycarbonyl)propoxy)phenyl group, 4-(4-methoxycarbonylbutoxy)phenyl group, 4-(4-(2-ethoxycarbonyl)butoxy)phenyl group, 4-(5-methoxycarbonylpentoxy)phenyl group, 4-(5-(2-ethoxycarbonyl)-pentoxy)phenyl group, 4-(6-(2-ethoxycarbonyl)hexyloxy)-

25 phenyl group, 2-methylthiophenyl group, 3-methylthiophenyl group, 4-methylthiophenyl group, 4-ethylthiophenyl group, 4-n-propylthiophenyl group, 4-isopropylthiophenyl group, 4-n-butylthiophenyl group,

- 4-tert-butylthiophenyl group, 4-n-pentylthiophenyl group, 4-n-hexylthiophenyl group, 2-(1-pyrrolyl)phenyl group, 3-(1-pyrrolyl)phenyl group, 4-(1-pyrrolyl)phenyl group, 2-(1-imidazolyl)phenyl group, 3-(1-imidazolyl)-
- 5 phenyl group, 4-(1-imidazolyl)phenyl group, 2-piperidinophenyl group, 3-piperidinophenyl group, 4-piperidinophenyl group, 4-morpholinophenyl group, 3-morpholinophenyl group, 2-morpholinophenyl group, 2-(1-pyrrolidinyl)phenyl group, 3-(1-pyrrolidinyl)phenyl
- 10 group, 4-(1-pyrrolidinyl)phenyl group, 2-(2-thienyl)-phenyl group, 3-(2-thienyl)phenyl group, 4-(2-thienyl)phenyl group, 2-(2-benzofuryl)phenyl group, 3-(2-benzofuryl)phenyl group, 4-(2-benzofuryl)phenyl group, 2-(1-piperazinyl)phenyl group, 3-(1-
- 15 piperazinyl)phenyl group, 4-(1-piperazinyl)phenyl group, 2-(4-methyl-1-piperazinyl)phenyl group, 3-(4-methyl-1-piperazinyl)phenyl group, 4-(4-methyl-1-piperazinyl)phenyl group, 4-(4-ethyl-1-piperazinyl)-phenyl group, 4-(4-n-propyl-1-piperazinyl)phenyl group,
- 20 4-(4-isopropyl-1-piperazinyl)phenyl group, 4-(4-n-butyl-1-piperazinyl)phenyl group, 4-(4-tert-butyl-1-piperazinyl)phenyl group, 4-(4-n-pentyl-1-piperazinyl)-phenyl group, 4-(4-n-hexyl-1-piperazinyl)phenyl group, 4-(4-benzyl-1-piperazinyl)phenyl group, 4-(4-(2-
- 25 phenethyl)-1-piperazinyl)phenyl group, 4-(4-(3-phenylpropyl)-1-piperazinyl)phenyl group, 4-(4-(4-phenylbutyl)-1-piperazinyl)phenyl group, 4-(4-(5-phenylpentyl)-1-piperazinyl)phenyl group, 4-(4-(6-

- phenylhexyl)-1-piperazinyl)phenyl group, 4-(4-benzoyl-1-piperazinyl)phenyl group, 4-(4-(2-methylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(2,3-dimethylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(2,4,6-trimethyl-
- 5 benzoyl)-1-piperazinyl)phenyl group, 4-(4-(3-methylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(4-methylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(4-ethylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(4-isopropylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(4-n-butyl-
- 10 benzoyl)-1-piperazinyl)phenyl group, 4-(4-(4-n-pentylbenzoyl)-1-piperazinyl)phenyl group, 4-(4-(4-n-hexylbenzoyl)-1-piperazinyl)phenyl group, 3-(2-quinolyl)phenyl, 4-(4,5,6-trimethoxy-3-quinolyl)phenyl group, 4-(6-methoxy-2-quinolyl)phenyl group, 2-(5,6-
- 15 dimethoxy-4-quinolyl)phenyl group, 3-(2-oxo-3-quinolyl)phenyl group, 4-(2-oxo-3-quinolyl)phenyl group, 3-(5-methoxy-2-oxo-3-quinolyl)phenyl group, 4-(5-methoxy-2-oxo-3-quinolyl)phenyl group, 3-(6-methoxy-2-oxo-7-quinolyl)phenyl group, 4-(6-methoxy-2-oxo-3-
- 20 quinolyl)phenyl group, 3-(7-methoxy-2-oxo-6-quinolyl)phenyl group, 4-(7-methoxy-2-oxo-8-quinolyl)phenyl group, 3-(8-methoxy-2-oxo-3-quinolyl)phenyl group, 4-(8-methoxy-2-oxo-3-quinolyl)phenyl group, 3-(5,6-diethoxy-2-oxo-4-quinolyl)phenyl group, 4-(5-ethoxy-2-
- 25 oxo-3-quinolyl)phenyl group, 3-(6-ethoxy-2-oxo-5-quinolyl)phenyl group, 4-(6-ethoxy-2-oxo-3-quinolyl)phenyl group, 3-(7-ethoxy-2-oxo-3-quinolyl)phenyl group, 4-(7-ethoxy-2-oxo-3-quinolyl)phenyl group, 3-(8-

ethoxy-2-oxo-3-quinolyl)phenyl group, 4-(8-ethoxy-2-oxo-3-quinolyl)phenyl group, 3-(1-piperidinylcarbonyl)-phenyl group, 4-(4-(carbostyryl-1-yl)piperidinyl-1-carbonyl)phenyl group, 4-(1,2,4-triazol-1-yl)phenyl
 5 group or the like.

A naphthyl group which may be substituted on the naphthalene ring by a group selected from a group consisting of a halogen atom, a halogen-substituted or unsubstituted C1-6 alkoxy group and an amino group
 10 which may have a C1-6 alkyl group as a substituent includes a naphthyl group which may be substituted on the naphthalene ring by 1 to 3 groups selected from a group consisting of a halogen atom, a halogen-substituted or unsubstituted C1-6 alkoxy group and an
 15 amino group which may have 1 to 2 C1-6 alkyl groups as a substituent, for example, a 1-naphthylmethyl group, 2-(2-naphthyl)ethyl group, 1-(3-naphthyl)ethyl group, 3-(4-naphthyl)propyl group, 4-(5-naphthyl)butyl group, 5-(6-naphthyl)pentyl group, 6-(7-naphthyl)hexyl group,
 20 2-methyl-3-(8-naphthyl)propyl group, 1,1-dimethyl-2-(3-naphthyl)ethyl group, 2-fluoro-1-naphthyl group, 2-chloro-1-naphthyl group, 2-bromo-1-naphthyl group, 3-fluoro-1-naphthyl group, 3-chloro-1-naphthyl group, 3-bromo-1-naphthyl group, 4-fluoro-1-naphthyl group, 4-chloro-1-naphthyl group, 4-bromo-1-naphthyl group, 5-fluoro-1-naphthyl group, 5-chloro-1-naphthyl group, 5-bromo-1-naphthyl group, 6-fluoro-1-naphthyl group, 6-chloro-1-naphthyl group, 6-bromo-1-naphthyl group, 7-

- fluoro-1-naphthyl group, 7-chloro-1-naphthyl group, 7-bromo-1-naphthyl group, 1-fluoro-2-naphthyl group, 8-fluoro-1-naphthyl group, 8-chloro-1-naphthyl group, 8-bromo-1-naphthyl group, 1-fluoro-2-naphthyl group, 1-chloro-2-naphthyl group, 1-bromo-2-naphthyl group, 3-fluoro-2-naphthyl group, 3-chloro-2-naphthyl group, 3-bromo-2-naphthyl group, 4-fluoro-2-naphthyl group, 4-chloro-2-naphthyl group, 4-bromo-2-naphthyl group, 4-dimethylamino-1-naphthyl group, 2-methoxy-1-naphthyl
- 10 group, 3-methoxy-1-naphthyl group, 4-methoxy-1-naphthyl group, 5-methoxy-1-naphthyl group, 6-methoxy-1-naphthyl group, 7-methoxy-1-naphthyl group, 8-methoxy-1-naphthyl group, 2-trifluoromethoxy-1-naphthyl group, 3-trifluoromethoxy-1-naphthyl group, 4-trifluoromethoxy-
- 15 1-naphthyl group, 5-trifluoromethoxy-1-naphthyl group, 6-trifluoromethoxy-1-naphthyl group, 7-trifluoromethoxy-1-naphthyl group, 8-trifluoromethoxy-1-naphthyl group, 3-amino-2-naphthyl group, 2-methylamino-1-naphthyl group, 4-ethylamino-2-naphthyl group, 5-
- 20 propylamino-1-naphthyl group, 6-n-butylamino-2-naphthyl group, 7-n-pentylamino-1-naphthyl group, 8-hexylamino-2-naphthyl group, 2,3-dichloro-1-naphthyl group, 2,4,6-trichloro-1-naphthyl group, 2-chloro-4-trifluoromethoxy-1-naphthyl group, 2-chloro-6-dimethylamino-1-
- 25 naphthyl group, 2-dimethylamino-1-naphthyl group, 3-dimethylamino-1-naphthyl group, 4-dimethylamino-1-naphthyl group, 5-dimethylamino-1-naphthyl group, 6-dimethylamino-1-naphthyl group, 7-dimethylamino-1-

naphthyl group, 8-dimethylamino-1-naphthyl group, 1-methoxy-2-naphthyl group, 3-methoxy-2-naphthyl group, 4-methoxy-2-naphthyl group, 5-methoxy-2-naphthyl group, 6-methoxy-2-naphthyl group, 7-methoxy-2-naphthyl group, 8-methoxy-2-naphthyl group, 1-trifluoromethoxy-2-naphthyl group, 3-trifluoromethoxy-2-naphthyl group, 4-trifluoromethoxy-2-naphthyl group, 5-trifluoromethoxy-2-naphthyl group, 6-trifluoromethoxy-2-naphthyl group, 7-trifluoromethoxy-2-naphthyl group, 8-trifluoro-

10 methoxy-2-naphthyl group, 1-dimethylamino-2-naphthyl group, 3-dimethylamino-2-naphthyl group, 4-dimethylamino-2-naphthyl group, 5-dimethylamino-2-naphthyl group, 6-dimethylamino-2-naphthyl group, 7-dimethylamino-2-naphthyl group, 8-dimethylamino-2-naphthyl

15 group or the like.

A biphenyl group (which may be substituted on the biphenyl ring by at least one group selected from a group consisting of a halogen atom, a halogen-substituted or unsubstituted C1-9 alkyl group and a

20 halogen-substituted or unsubstituted C1-6 alkoxy group) includes a biphenyl group (which may be substituted on the biphenyl ring by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, a halogen-substituted or unsubstituted C1-9 alkyl

25 group and a halogen-substituted or unsubstituted C1-6 alkoxy group), for example, a 3-biphenyl group, 4-biphenyl group, 2'-fluoro-3-biphenyl group, 3'-fluoro-3-biphenyl group, 4'-fluoro-3-biphenyl

- group, 3',4'-difluoro-3-biphenyl group, 3',4',5'-trichloro-3-biphenyl group, 2',3',4',5',6'-pentafluoro-4-biphenyl group, 2'-fluoro-3',4'-ditrifluoromethyl-3-biphenyl group, 2',4'-
- 5 ditrifluoro-3-biphenyl group, 3',5'-fluoro-3-biphenyl group, 2'-chloro-3-biphenyl group, 3'-chloro-3-biphenyl group, 4'-chloro-3-biphenyl group, 3',4'-dichloro-3-biphenyl group, 2',4'-dichloro-3-biphenyl group, 3',5'-dichloro-3-
- 10 biphenyl group, 2'-methyl-3-biphenyl group, 3'-methyl-3-biphenyl group, 4'-methyl-3-biphenyl group, 3',4'-dimethyl-3-biphenyl group, 2',4'-dimethyl-3-biphenyl group, 3',5'-dimethyl-3-biphenyl group, 2'-trifluoromethyl-3-biphenyl
- 15 group, 3'-trifluoromethyl-3-biphenyl group, 4'-trifluoromethyl-3-biphenyl group, 3',4'-ditrifluoromethyl-3-biphenyl group, 2',4'-ditrifluoromethyl-3-biphenyl group, 3',5'-ditrifluoromethyl-3-biphenyl group, 2'-methoxy-3-biphenyl group, 3'-methoxy-3-
- 20 biphenyl group, 4'-methoxy-3-biphenyl group, 3',4'-dimethoxy-3-biphenyl group, 2',4'-dimethoxy-3-biphenyl group, 3',4',5'-trimethoxy-3-biphenyl group, 3',5'-dimethoxy-3-biphenyl group, 2'-trifluoromethoxy-3-biphenyl group, 3'-trifluoro-
- 25 methoxy-3-biphenyl group, 4'-trifluoromethoxy-3-biphenyl group, 3',4'-ditrifluoromethoxy-3-biphenyl group, 2',4'-ditrifluoromethoxy-3-biphenyl group, 3',5'-ditrifluoromethoxy-3-biphenyl group, 2'-fluoro-

- 4-biphenylyl group, 3'-fluoro-4-biphenylyl group, 4'-fluoro-4-biphenylyl group, 3',4'-difluoro-4-biphenylyl group, 2',4'-difluoro-4-biphenylyl group, 3',5'-difluoro-4-biphenylyl group, 2'-chloro-4-biphenylyl group, 3'-chloro-4-biphenylyl group, 4'-chloro-4-biphenylyl group, 3',4'-dichloro-4-biphenylyl group, 2',4'-dichloro-4-biphenylyl group, 3',5'-dichloro-4-biphenylyl group, 2'-methyl-4-biphenylyl group, 3'-methyl-4-biphenylyl group, 4'-methyl-4-biphenylyl group, 4'-ethyl-4-biphenylyl group, 4'-n-propyl-4-biphenylyl group, 4'-n-butyl-4-biphenylyl group, 4'-n-pentyl-4-biphenylyl group, 4'-n-hexyl-4-biphenylyl group, 4'-n-heptyl-4-biphenylyl group, 4'-n-octyl-4-biphenylyl group, 4'-n-nonyl-4-biphenylyl group, 3',4'-dimethyl-4-biphenylyl group, 2',4'-dimethyl-4-biphenylyl group, 3',5'-dimethyl-4-biphenylyl group, 3',4',5'-trimethyl-4-biphenylyl group, 2'-trifluoromethyl-4-biphenylyl group, 3'-trifluoromethyl-4-biphenylyl group, 4'-trifluoromethyl-4-biphenylyl group, 3',4'-ditrifluoromethyl-4-biphenylyl group, 2',4'-ditrifluoromethyl-4-biphenylyl group, 3',5'-ditrifluoromethyl-4-biphenylyl group, 2'-methoxy-4-biphenylyl group, 3'-methoxy-4-biphenylyl group, 4'-methoxy-4-biphenylyl group, 3',4'-dimethoxy-4-biphenylyl group, 2',4'-dimethoxy-4-biphenylyl group, 3',4'-dimethoxy-2'-chloro-4-biphenylyl group, 3',5'-dimethoxy-4-biphenylyl group, 2'-trifluoromethoxy-4-biphenylyl group, 3'-trifluoromethoxy-4-biphenylyl

group, 4'-trifluoromethoxy-4-biphenyl group, 3',4'-
 ditrifluoromethoxy-4-biphenyl group, 2',4'-
 ditrifluoromethoxy-4-biphenyl group, 3',5'-
 ditrifluoromethoxy-4-biphenyl group or the like.

- 5 A benzothienyl group (which may be substituted on the benzothiophene ring by at least one group selected from a group of a halogen atom, a halogen-substituted or unsubstituted C1-6 alkyl group and a halogen-substituted or unsubstituted C1-6 alkoxy group)
- 10 includes a benzothienyl group (which may be substituted on the benzothiophene ring by 1 to 3 groups selected from a group of a halogen atom, a halogen-substituted or unsubstituted C1-6 alkyl group and a halogen-substituted or unsubstituted C1-6 alkoxy group), for
- 15 example, a 2-benzothienyl group, 3-benzothienyl group, 3-methyl-2-benzothienyl group, 2-methyl-3-benzothienyl group, 4-fluoro-2-benzothienyl group, 5-fluoro-2-benzothienyl group, 4,5,6-trichloro-2-benzothienyl group, 6-fluoro-2-benzothienyl group, 7-fluoro-2-
- 20 benzothienyl group, 4-chloro-2-benzothienyl group, 5-chloro-2-benzothienyl group, 6-chloro-2-benzothienyl group, 7-chloro-2-benzothienyl group, 4-bromo-2-benzothienyl group, 5-bromo-2-benzothienyl group, 6-bromo-2-benzothienyl group, 7-bromo-2-benzothienyl
- 25 group, 5-methyl-2-benzothienyl group, 6-methyl-2-benzothienyl group, 7-methyl-2-benzothienyl group, 4-trifluoromethyl-2-benzothienyl group, 5-trifluoromethyl-2-benzothienyl group, 6-trifluoromethyl-2-

- benzothienyl group, 7-trifluoromethyl-2-benzothienyl group, 4-ethyl-2-benzothienyl group, 5-ethyl-2-benzothienyl group, 6-ethyl-2-benzothienyl group, 7-ethyl-2-benzothienyl group, 4-pentafluoroethyl-2-benzothienyl group, 5-pentafluoroethyl-2-benzothienyl group, 6-pentafluoroethyl-2-benzothienyl group, 7-pentafluoroethyl-2-benzothienyl group, 4-methoxy-2-benzothienyl group, 5-methoxy-2-benzothienyl group, 6-methoxy-2-benzothienyl group, 7-methoxy-2-benzothienyl group, 4-trifluoromethoxy-2-benzothienyl group, 5-trifluoromethoxy-2-benzothienyl group, 6-trifluoromethoxy-2-benzothienyl group, 7-trifluoromethoxy-2-benzothienyl group, 4-fluoro-3-methyl-2-benzothienyl group, 5-fluoro-3-methyl-2-benzothienyl group, 6-fluoro-3-methyl-2-benzothienyl group, 7-fluoro-3-methyl-2-benzothienyl group, 4-chloro-3-methyl-2-benzothienyl group, 5-chloro-3-methyl-2-benzothienyl group, 6-chloro-3-methyl-2-benzothienyl group, 7-chloro-3-methyl-2-benzothienyl group, 4-bromo-3-methyl-2-benzothienyl group, 5-bromo-3-methyl-2-benzothienyl group, 6-bromo-3-methyl-2-benzothienyl group, 7-bromo-3-methyl-2-benzothienyl group, 5-methyl-3-methyl-2-benzothienyl group, 6-methyl-3-methyl-2-benzothienyl group, 7-methyl-3-methyl-2-benzothienyl group, 3,4,6-trimethyl-2-benzothienyl group, 4,5,6-trimethoxy-2-benzothienyl group, 4-trifluoromethyl-3-methyl-2-benzothienyl group, 5-trifluoromethyl-3-methyl-2-benzothienyl group, 6-trifluoromethyl-3-methyl-2-

- benzothienyl group, 7-trifluoromethyl-3-methyl-2-benzothienyl group, 4-ethyl-3-methyl-2-benzothienyl group, 5-ethyl-3-methyl-2-benzothienyl group, 6-ethyl-3-methyl-2-benzothienyl group, 7-ethyl-3-methyl-2-benzothienyl group, 4-pentafluoroethyl-3-methyl-2-benzothienyl group, 5-pentafluoroethyl-3-methyl-2-benzothienyl group, 6-pentafluoroethyl-3-methyl-2-benzothienyl group, 7-pentafluoroethyl-3-methyl-2-benzothienyl group, 4-methoxy-3-methyl-2-benzothienyl group, 5-methoxy-3-methyl-2-benzothienyl group, 6-methoxy-3-methyl-2-benzothienyl group, 7-methoxy-3-methyl-2-benzothienyl group, 4-trifluoromethoxy-3-methyl-2-benzothienyl group, 5-trifluoromethoxy-3-methyl-2-benzothienyl group, 6-trifluoromethoxy-3-methyl-2-benzothienyl group, 7-trifluoromethoxy-3-methyl-2-benzothienyl group, 4-isopropyl-2-benzothienyl group, 5-isopropyl-3-methyl-2-benzothienyl group, 6-isopropyl-2-benzothienyl group, 7-isopropyl-2-benzothienyl group, 4-hexyl-2-benzothienyl group, 5-hexyl-2-benzothienyl group, 6-hexyl-2-benzothienyl group, 7-hexyl-2-benzothienyl group, 4-ethoxy-2-benzothienyl group, 5-ethoxy-2-benzothienyl group, 6-ethoxy-2-benzothienyl group, 7-ethoxy-2-benzothienyl group, 4-fluoro-5-trifluoromethyl-2-benzothienyl group, 6-fluoro-5-trifluoromethyl-2-benzothienyl group, 7-fluoro-5-trifluoromethyl-2-benzothienyl group, 4-chloro-5-trifluoromethyl-2-benzothienyl group, 6-chloro-5-trifluoromethyl-2-benzothienyl group, 7-

- chloro-5-trifluoromethyl-2-benzothienyl group, 4-chloro-5-trifluoromethoxy-2-benzothienyl group, 6-chloro-5-trifluoromethoxy-2-benzothienyl group, 7-chloro-5-trifluoromethoxy-2-benzothienyl group, 4-fluoro-3-benzothienyl group, 5-fluoro-3-benzothienyl group, 6-fluoro-3-benzothienyl group, 7-fluoro-3-benzothienyl group, 4-chloro-3-benzothienyl group, 5-chloro-3-benzothienyl group, 6-chloro-3-benzothienyl group, 7-chloro-3-benzothienyl group, 4-bromo-3-benzothienyl group, 5-bromo-3-benzothienyl group, 6-bromo-3-benzothienyl group, 7-bromo-3-benzothienyl group, 4-fluoro-3-benzothienyl group, 5-methyl-3-benzothienyl group, 6-methyl-3-benzothienyl group, 7-methyl-3-benzothienyl group, 4-trifluoromethyl-3-benzothienyl group, 5-trifluoromethyl-3-benzothienyl group, 6-trifluoromethyl-3-benzothienyl group, 7-trifluoromethyl-3-benzothienyl group, 4-fluoro-2-methyl-3-benzothienyl group, 5-fluoro-2-methyl-3-benzothienyl group, 6-fluoro-2-methyl-3-benzothienyl group, 7-fluoro-2-methyl-3-benzothienyl group, 4-chloro-2-methyl-3-benzothienyl group, 5-chloro-2-methyl-3-benzothienyl group, 6-chloro-2-methyl-3-benzothienyl group, 7-chloro-2-methyl-3-benzothienyl group, 4-bromo-2-methyl-3-benzothienyl group, 5-bromo-2-methyl-3-benzothienyl group, 6-bromo-2-methyl-3-benzothienyl group, 7-bromo-2-methyl-3-benzothienyl group, 4-fluoro-2-methyl-3-benzothienyl group, 5-methyl-2-methyl-3-benzothienyl group, 6-methyl-2-

- methyl-3-benzothienyl group, 7-methyl-2-methyl-3-
 benzothienyl group, 4-trifluoromethyl-2-methyl-3-
 benzothienyl group, 5-trifluoromethyl-2-methyl-3-
 benzothienyl group, 6-trifluoromethyl-2-methyl-3-
 5 benzothienyl group, 7-trifluoromethyl-2-methyl-3-
 benzothienyl group, 4-ethyl-3-benzothienyl group, 5-
 ethyl-3-benzothienyl group, 6-ethyl-3-benzothienyl
 group, 7-ethyl-3-benzothienyl group, 4-pentafluoro-
 ethyl-3-benzothienyl group, 5-pentafluoroethyl-3-
 10 benzothienyl group, 6-pentafluoroethyl-3-benzothienyl
 group, 7-pentafluoroethyl-3-benzothienyl group, 4-
 methoxy-3-benzothienyl group, 5-methoxy-3-benzothienyl
 group, 6-methoxy-3-benzothienyl group, 7-methoxy-3-
 benzothienyl group, 4-trifluoromethoxy-3-benzothienyl
 15 group, 5-trifluoromethoxy-3-benzothienyl group, 6-
 trifluoromethoxy-3-benzothienyl group, 7-trifluoro-
 methoxy-3-benzothienyl group, 4-isoprpyl-3-benzothienyl
 group, 5-isoprpyl-3-benzothienyl group, 6-isoprpyl-3-
 benzothienyl group, 7-isoprpyl-3-benzothienyl group, 4-
 20 hexyl-3-benzothienyl group, 5-hexyl-3-benzothienyl
 group, 6-hexyl-3-benzothienyl group, 7-hexyl-3-
 benzothienyl group, 4-ethoxy-3-benzothienyl group, 5-
 ethoxy-3-benzothienyl group, 6-ethoxy-3-benzothienyl
 group, 7-ethoxy-3-benzothienyl group, 4-fluoro-5-
 25 trifluoromethyl-3-benzothienyl group, 6-fluoro-5-
 trifluoromethyl-3-benzothienyl group, 7-fluoro-5-
 trifluoromethyl-3-benzothienyl group, 4-chloro-5-
 trifluoromethyl-3-benzothienyl group, 6-chloro-5-

trifluoromethyl-3-benzothienyl group, 7-chloro-5-trifluoromethyl-3-benzothienyl group, 4-chloro-5-trifluoromethoxy-3-benzothienyl group, 6-chloro-5-trifluoromethoxy-3-benzothienyl group, 7-chloro-5-
5 trifluoromethoxy-3-benzothienyl group or the like.

A pyridyl group (which may be substituted on the pyridine ring by at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group, phenyl group (which
10 may be substituted on the phenyl ring by at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group), furyl group and thienyl group) includes
15 a pyridyl group (which may be substituted on the pyridine ring by 1 to 3 groups selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group, phenyl group (which may be substituted on the phenyl ring by 1 to 5, preferably
20 1 to 3 groups selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group), furyl group and thienyl group), for example, an unsubstituted 2-pyridyl group, 3-pyridyl
25 group, 4-pyridyl group, 3-fluoro-2-pyridyl group, 4-fluoro-2-pyridyl group, 5-fluoro-2-pyridyl group, 6-fluoro-2-pyridyl group, 3-chloro-2-pyridyl group, 4-chloro-2-pyridyl group, 5-chloro-2-pyridyl group, 6-

- chloro-2-pyridyl group, 6-chloro-4-methyl-2-pyridyl group, 3,4,5-trichloro-2-pyridyl group, 3-methyl-2-pyridyl group, 4-methyl-2-pyridyl group, 5-methyl-2-pyridyl group, 6-methyl-2-pyridyl group, 3-ethyl-2-
- 5 pyridyl group, 4-ethyl-2-pyridyl group, 5-ethyl-2-pyridyl group, 6-ethyl-2-pyridyl group, 3-n-propyl-2-pyridyl group, 4-n-propyl-2-pyridyl group, 5-n-propyl-2-pyridyl group, 6-n-propyl-2-pyridyl group, 5-tert-butyl-2-pyridyl group, 4-n-pentyl-2-pyridyl group, 5-n-
- 10 hexyl-2-pyridyl group, 6-n-hexyl-2-pyridyl group, 2-chloro-3-pyridyl group, 4-chloro-3-pyridyl group, 5-chloro-3-pyridyl group, 6-chloro-3-pyridyl group, 3-pyridyl group, 4-pyridyl group, 3-methyl-3-pyridyl group, 4-methyl-3-pyridyl group, 5-methyl-3-pyridyl
- 15 group, 6-methyl-3-pyridyl group, 2-ethyl-3-pyridyl group, 4-ethyl-3-pyridyl group, 5-ethyl-3-pyridyl group, 6-ethyl-3-pyridyl group, 2-propyl-3-pyridyl group, 4-propyl-3-pyridyl group, 5-propyl-3-pyridyl group, 6-propyl-3-pyridyl group, 5-tert-butyl-3-pyridyl
- 20 group, 4-pentyl-3-pyridyl group, 5-hexyl-3-pyridyl group, 6-hexyl-3-pyridyl group, 3-chloro-4-pyridyl group, 2-chloro-4-pyridyl group, 3-methyl-4-pyridyl group, 2-methyl-4-pyridyl group, 3-trifluoromethyl-4-pyridyl group, 3-ethyl-4-pyridyl group, 2-ethyl-4-
- 25 pyridyl group, 3-propyl-4-pyridyl group, 6-n-propyl-4-pyridyl group, 5-tert-butyl-4-pyridyl group, 2-n-hexyl-4-pyridyl group, 3-phenyl-2-pyridyl group, 4-phenyl-2-pyridyl group, 5-phenyl-2-pyridyl group, 6-phenyl-2-

- pyridyl group, 2-phenyl-3-pyridyl group, 2-phenyl-4-pyridyl group, 2-phenyl-5-pyridyl group, 3-(4-fluorophenyl)-2-pyridyl group, 3-(3-fluoro-4-chlorophenyl)-2-pyridyl group, 3-(3-fluorophenyl)-2-pyridyl group, 3-(4-bromophenyl)-4-pyridyl group, 3-(3-fluorophenyl)-4-pyridyl group, 4-(2,3,4,5,6-pentafluorophenyl)-2-pyridyl group, 4-(3-fluoro-4-chlorophenyl)-2-pyridyl group, 4-(3-fluorophenyl)-2-pyridyl group, 3-(4-chlorophenyl)-2-pyridyl group, 4-(4-chlorophenyl)-2-pyridyl group, 5-(4-chlorophenyl)-2-pyridyl group, 6-(2,4,6-trichlorophenyl)-2-pyridyl group, 2-(4-chlorophenyl)-3-pyridyl group, 2-(4-chlorophenyl)-4-pyridyl group, 6-(4-chlorophenyl)-3-pyridyl group, 4-(3-fluoro-4-chlorophenyl)-2-pyridyl group, 5-(4-iodo-3-chlorophenyl)-2-pyridyl group, 6-(4-fluoro-3-chlorophenyl)-2-pyridyl group, 2-(4-fluoro-3-chlorophenyl)-3-pyridyl group, 2-(4-fluoro-3-chlorophenyl)-4-pyridyl group, 6-(4-fluoro-3-chlorophenyl)-3-pyridyl group, 5-(4-trifluoromethylphenyl)-2-pyridyl group, 6-(4-trifluoromethylphenyl)-2-pyridyl group, 2-(4-trifluoromethylphenyl)-3-pyridyl group, 2-(4-trifluoromethylphenyl)-4-pyridyl group, 6-(4-trifluoromethylphenyl)-3-pyridyl group, 5-(4-methylphenyl)-2-pyridyl group, 6-(4-methylphenyl)-2-pyridyl group, 2-(4-methylphenyl)-3-pyridyl group, 2-(4-methylphenyl)-4-pyridyl group, 6-(4-methylphenyl)-3-pyridyl group, 4-fluoro-2-(4-methoxyphenyl)-3-pyridyl group, 4-methyl-5-phenyl-3-chloro-2-pyridyl group, 5-(4-methoxyphenyl)-2-

- pyridyl group, 6-(4-methoxyphenyl)-2-pyridyl group, 2-(4-methoxyphenyl)-3-pyridyl group, 2-(4-methoxyphenyl)-4-pyridyl group, 6-(4-methoxyphenyl)-3-pyridyl group, 5-(4-trifluoromethoxyphenyl)-2-pyridyl group, 6-(4-trifluoromethoxyphenyl)-2-pyridyl group, 2-(4-trifluoromethoxyphenyl)-3-pyridyl group, 2-(4-trifluoromethoxyphenyl)-4-pyridyl group, 6-(4-trifluoromethoxyphenyl)-3-pyridyl group, 5-(3-chloro-4-trifluoromethoxyphenyl)-2-pyridyl group, 6-(3-chloro-4-trifluoromethoxyphenyl)-2-pyridyl group, 2-(3-chloro-4-trifluoromethoxyphenyl)-3-pyridyl group, 2-(3-chloro-4-trifluoromethoxyphenyl)-4-pyridyl group, 6-(3-chloro-4-trifluoromethoxyphenyl)-3-pyridyl group, 5-(3-fluoro-4-trifluoromethoxyphenyl)-2-pyridyl group, 6-(3-fluoro-4-trifluoromethoxyphenyl)-2-pyridyl group, 2-(3-fluoro-4-trifluoromethoxyphenyl)-3-pyridyl group, 2-(3-fluoro-4-trifluoromethoxyphenyl)-4-pyridyl group, 6-(3-fluoro-4-trifluoromethoxyphenyl)-3-pyridyl group, 5-(3,4-dimethoxyphenyl)-2-pyridyl group, 6-(3,4-dimethoxyphenyl)-2-pyridyl group, 2-(3,4-dimethoxyphenyl)-3-pyridyl group, 2-(3,4-dimethoxyphenyl)-4-pyridyl group, 6-(3,4-dimethoxyphenyl)-3-pyridyl group, 5-(3,4-difluorophenyl)-2-pyridyl group, 6-(3,4-difluorophenyl)-2-pyridyl group, 2-(3,4-difluorophenyl)-3-pyridyl group, 2-(3,4-difluorophenyl)-4-pyridyl group, 6-(3,4-difluorophenyl)-3-pyridyl group, 5-(3,4-dichlorophenyl)-2-pyridyl group, 6-(3,4-dichlorophenyl)-2-pyridyl group, 2-(3,4-dichlorophenyl)-3-

pyridyl group, 2-(3,4-dichlorophenyl)-4-pyridyl group,
 6-(3,4-dichlorophenyl)-3-pyridyl group, 5-(2-furyl)-2-
 pyridyl group, 6-(2-furyl)-2-pyridyl group, 5-(2-
 furyl)-3-pyridyl group, 6-(2-furyl)-3-pyridyl group, 5-
 5 (3-furyl)-2-pyridyl group, 6-(3-furyl)-2-pyridyl group,
 5-(3-furyl)-3-pyridyl group, 6-(3-furyl)-3-pyridyl
 group, 5-(2-thienyl)-2-pyridyl group, 6-(2-thienyl)-2-
 pyridyl group, 5-(2-thienyl)-3-pyridyl group, 6-(2-
 thienyl)-3-pyridyl group, 5-(3-thienyl)-2-pyridyl
 10 group, 6-(3-thienyl)-2-pyridyl group, 5-(3-thienyl)-3-
 pyridyl group, 6-(3-thienyl)-3-pyridyl group or the
 like.

A furyl group (which may be substituted on
 the furan ring by 1 to 3 groups selected from a group
 15 consisting of a C1-6 alkyl group, nitro group and
 phenyl group (which may be substituted on the phenyl
 ring by at least one group selected from a group
 consisting of a halogen atom, a halogen-substituted or
 unsubstituted C1-6 alkyl group, a halogen-substituted
 20 or unsubstituted C1-6 alkoxy group and a nitro group))
 includes a furyl group (which may be substituted on the
 furan ring by 1 to 3 groups selected from a group
 consisting of a C1-6 alkyl group, nitro group and
 phenyl group (which may be substituted on the phenyl
 25 ring by 1 to 5, preferably 1 to 3 groups selected from
 a group consisting of a halogen atom, a halogen-
 substituted or unsubstituted C1-6 alkyl group, a
 halogen-substituted or unsubstituted C1-6 alkoxy group

and a nitro group)), for example, a 2-furyl group, 3-furyl group, 3-methyl-2-furyl group, 3,4-dimethyl-2-furyl group, 3,4,5-trimethyl-2-furyl group, 4-methyl-2-furyl group, 5-methyl-2-furyl group, 3-ethyl-2-furyl group, 4-ethyl-2-furyl group, 5-ethyl-2-furyl group, 3-n-propyl-2-furyl group, 4-n-propyl-2-furyl group, 5-n-propyl-2-furyl group, 3-n-butyl-2-furyl group, 4-n-butyl-2-furyl group, 5-n-butyl-2-furyl group, 3-n-pentyl-2-furyl group, 4-n-pentyl-2-furyl group, 5-n-pentyl-2-furyl group, 3-n-hexyl-2-furyl group, 4-n-hexyl-2-furyl group, 5-n-hexyl-2-furyl group, 2-methyl-3-furyl group, 4-methyl-3-furyl group, 5-methyl-3-furyl group, 2-ethyl-3-furyl group, 4-ethyl-3-furyl group, 5-ethyl-3-furyl group, 2-n-propyl-3-furyl group, 4-n-propyl-3-furyl group, 5-n-propyl-3-furyl group, 2-n-butyl-3-furyl group, 4-n-butyl-3-furyl group, 5-n-butyl-3-furyl group, 2-n-pentyl-3-furyl group, 4-n-pentyl-3-furyl group, 5-n-pentyl-3-furyl group, 2-n-hexyl-3-furyl group, 4-n-hexyl-3-furyl group, 5-n-hexyl-3-furyl group, 3-nitro-2-furyl group, 4-nitro-2-furyl group, 5-nitro-2-furyl group, 2-nitro-3-furyl group, 4-nitro-3-furyl group, 3-phenyl-2-furyl group, 4-phenyl-2-furyl group, 5-phenyl-2-furyl group, 3-phenyl-4-furyl group, 4-phenyl-3-furyl group, 3-(3-fluorophenyl)-2-furyl group, 4-(3-fluorophenyl)-2-furyl group, 5-(3-fluorophenyl)-2-furyl group, 2-(3-fluorophenyl)-3-furyl group, 3-(2-fluorophenyl)-2-furyl group, 4-(2-fluorophenyl)-2-furyl group, 5-(2-

- fluorophenyl)-2-furyl group, 2-(2-fluorophenyl)-3-furyl group, 4-nitro-3-furyl group, 3-(4-fluorophenyl)-2-furyl group, 4-(4-fluorophenyl)-2-furyl group, 5-(4-fluorophenyl)-2-furyl group, 2-(4-fluorophenyl)-3-furyl group, 4-(4-fluorophenyl)-3-furyl group, 3-(3,4-difluorophenyl)-2-furyl group, 4-(2,3,4,5,6-pentafluorophenyl)-2-furyl group, 5-(3,4-difluorophenyl)-2-furyl group, 2-(3,4-difluorophenyl)-3-furyl group, 4-(3,4-difluorophenyl)-3-furyl group, 3-(4-chlorophenyl)-2-furyl group, 4-(4-chlorophenyl)-2-furyl group, 5-(4-chlorophenyl)-2-furyl group, 2-(4-chlorophenyl)-3-furyl group, 4-(4-chlorophenyl)-3-furyl group, 3-(2-chlorophenyl)-2-furyl group, 4-(2-chlorophenyl)-2-furyl group, 5-(2-chlorophenyl)-2-furyl group, 2-(2-chlorophenyl)-3-furyl group, 4-(2-chlorophenyl)-3-furyl group, 5-(2-chlorophenyl)-3-furyl group, 3-(3-chlorophenyl)-2-furyl group, 4-(3-chlorophenyl)-2-furyl group, 5-(3-chlorophenyl)-2-furyl group, 2-(3-chlorophenyl)-3-furyl group, 4-(3-chlorophenyl)-3-furyl group, 3-(3,4,5-trichlorophenyl)-2-furyl group, 4-(3,4-dichlorophenyl)-2-furyl group, 5-(3,4-dichlorophenyl)-2-furyl group, 2-(3,4-chlorophenyl)-3-furyl group, 4-(3,4-dichlorophenyl)-3-furyl group, 3-(4-methylphenyl)-2-furyl group, 4-(4-methylphenyl)-2-furyl group, 5-(4-methylphenyl)-2-furyl group, 2-(4-methylphenyl)-3-furyl group, 4-(4-methylphenyl)-3-furyl group, 3-(4-trifluoromethylphenyl)-2-furyl group, 4-(4-trifluoromethylphenyl)-2-

furyl group, 5-(4-trifluoromethylphenyl)-2-furyl group,
 2-(4-trifluoromethylphenyl)-3-furyl group, 4-(4-
 trifluoromethylphenyl)-3-furyl group, 3-(2-trifluoro-
 methylphenyl)-2-furyl group, 4-(2-trifluoromethyl-
 5 phenyl)-2-furyl group, 5-(2-trifluoromethylphenyl)-2-
 furyl group, 2-(2-trifluoromethylphenyl)-3-furyl group,
 4-(2-trifluoromethylphenyl)-3-furyl group, 3-(3-
 trifluoromethylphenyl)-2-furyl group, 4-(3-trifluoro-
 methylphenyl)-2-furyl group, 5-(4-trifluoromethyl-
 10 phenyl)-2-furyl group, 2-(3-trifluoromethylphenyl)-3-
 furyl group, 4-(3-trifluoromethylphenyl)-3-furyl group,
 3-(2-chloro-5-trifluoromethylphenyl)-2-furyl group, 4-
 (2-chloro-5-trifluoromethylphenyl)-2-furyl group, 5-(2-
 chloro-5-trifluoromethylphenyl)-2-furyl group, 2-(2-
 15 chloro-5-trifluoromethylphenyl)-3-furyl group, 4-(2-
 chloro-5-trifluoromethylphenyl)-3-furyl group, 3-(4-
 methoxyphenyl)-2-furyl group, 4-(4-methoxyphenyl)-2-
 furyl group, 5-(4-methoxyphenyl)-2-furyl group, 3-(4-
 methoxyphenyl)-4-furyl group, 4-(4-methoxyphenyl)-3-
 20 furyl group, 3-(2-methoxyphenyl)-2-furyl group, 4-(2-
 methoxyphenyl)-2-furyl group, 5-(2-methoxyphenyl)-2-
 furyl group, 2-(2-methoxyphenyl)-3-furyl group, 4-(2-
 methoxyphenyl)-3-furyl group, 3-(2-trifluoromethoxy-
 phenyl)-2-furyl group, 4-(2-trifluoromethoxyphenyl)-2-
 25 furyl group, 5-(2-trifluoromethoxyphenyl)-2-furyl
 group, 3-(4-trifluoromethoxyphenyl)-2-furyl group, 4-
 (4-trifluoromethoxyphenyl)-2-furyl group, 5-(4-
 trifluoromethoxyphenyl)-2-furyl group, 2-(4-trifluoro-

methoxyphenyl)-3-furyl group, 4-(4-trifluoromethoxyphenyl)-3-furyl group, 3-(3,4-dimethoxyphenyl)-2-furyl group, 4-(3,4-dimethoxyphenyl)-2-furyl group, 5-(3,4-dimethoxyphenyl)-2-furyl group, 3-(3,4-dimethoxyphenyl)-3-furyl group, 4-(3,4-dimethoxyphenyl)-3-furyl group, 3-(4-nitrophenyl)-2-furyl group, 4-(4-nitrophenyl)-2-furyl group, 5-(4-nitrophenyl)-2-furyl group, 2-(4-nitrophenyl)-3-furyl group, 4-(4-nitrophenyl)-3-furyl group, 3-(3-nitrophenyl)-2-furyl group, 4-(3-nitrophenyl)-2-furyl group, 5-(3-nitrophenyl)-2-furyl group, 2-(3-nitrophenyl)-3-furyl group, 4-(3-nitrophenyl)-3-furyl group, 4-methyl-5-nitro-2-furyl group, 4-phenyl-3,5-dimethyl-2-furyl group or the like.

15 A benzothiazole group (which may have on the benzothiazole ring at least one phenyl group which may have a C1-6 alkoxy group as a substituent on the phenyl ring) includes a benzothiazole group (which may have on the benzothiazole ring 1 to 3 phenyl groups which may have 1 to 3 C1-6 alkoxy groups as a substituent on the phenyl ring), for example, a benzothiazol-2-yl group, benzothiazol-4-yl group, benzothiazol-5-yl group, benzothiazol-6-yl group, benzothiazol-7-yl group, 2-phenylbenzothiazol-4-yl group, 2,5-diphenylbenzothiazol-4-yl group, 4,5,6-triphenylbenzothiazol-2-yl group, 2-phenylbenzothiazol-5-yl group, 2-phenylbenzothiazol-6-yl group, 2-phenylbenzothiazol-7-yl group, 2-(3-ethoxyphenyl)benzothiazol-7-yl group, 2-(4-propoxy-

phenyl)benzothiazol-4-yl group, 2-(4-n-butoxyphenyl)-
 benzothiazol-5-yl group, 2-(4-n-hexyloxyphenyl)-
 benzothiazol-6-yl group, 2-(4-n-pentyloxyphenyl)-
 benzothiazol-7-yl group, 4-phenylbenzothiazol-2-yl
 5 group, 5-phenylbenzothiazol-2-yl group, 6-phenyl-
 benzothiazol-2-yl group, 7-phenylbenzothiazol-2-yl
 group, 4-(3,4-dimethoxyphenyl)benzothiazol-2-yl group,
 5-(3,4,5-trimethoxyphenyl)benzothiazol-2-yl group, 7-
 (3-methoxyphenyl)benzothiazol-2-yl group, 4-(4-
 10 methoxyphenyl)benzothiazol-2-yl group, 5-(4-methoxy-
 phenyl)benzothiazol-2-yl group, 6-(4-methoxyphenyl)-
 benzothiazol-2-yl group, 7-(4-methoxyphenyl)-
 benzothiazol-2-yl group or the like.

A thienyl group (which may have on the
 15 thiophene ring at least one group selected from a group
 consisting of a halogen atom, nitro group, C1-6 alkyl
 group, pyrazolyl group which may be substituted on the
 pyrazole ring by at least one halogen-substituted or
 unsubstituted C1-6 alkyl group as a substituent and
 20 thienyl group which may have a halogen atom on the
 thiophene ring) includes a thienyl group (which may
 have on the thiophene ring 1 to 3 groups selected from
 a group consisting of a halogen atom, nitro group, C1-6
 alkyl group, pyrazolyl group which may be substituted
 25 on the pyrazole ring by 1 to 3 halogen-substituted or
 unsubstituted C1-6 alkyl groups as a substituent and
 thienyl group which may have 1 to 3 halogen atoms on
 the thiophene ring), for example, a 2-thienyl group, 3-

fluoro-2-thienyl group, 4-fluoro-2-thienyl group, 5-
 fluoro-2-thienyl group, 3-chloro-2-thienyl group, 4-
 chloro-2-thienyl group, 5-chloro-2-thienyl group, 3-
 bromo-2-thienyl group, 4-bromo-2-thienyl group, 5-
 5 bromo-2-thienyl group, 3-thienyl group, 2-fluoro-3-
 thienyl group, 4-fluoro-3-thienyl group, 5-fluoro-3-
 thienyl group, 2-chloro-3-thienyl group, 4-chloro-3-
 thienyl group, 5-chloro-3-thienyl group, 2-bromo-3-
 thienyl group, 4-bromo-3-thienyl group, 5-bromo-3-
 10 thienyl group, 3-nitro-2-thienyl group, 4-nitro-2-
 thienyl group, 5-nitro-2-thienyl group, 2-nitro-3-
 thienyl group, 4-nitro-3-thienyl group, 5-nitro-3-
 thienyl group, 3-methyl-2-thienyl group, 4-methyl-2-
 thienyl group, 5-methyl-2-thienyl group, 5-ethyl-2-
 15 thienyl group, 2-methyl-3-thienyl group, 4-methyl-3-
 thienyl group, 5-methyl-3-thienyl group, 2,5-dimethyl-
 3-thienyl group, 2,4,5-trimethyl-3-thienyl group, 2,4-
 dimethyl-3-thienyl group, 3-(pyrazol-1-yl)-2-thienyl
 group, 4-(pyrazol-1-yl)-2-thienyl group, 5-(pyrazol-1-
 20 yl)-2-thienyl group, 2-(pyrazol-1-yl)-3-thienyl group,
 4-(pyrazol-1-yl)-3-thienyl group, 5-(pyrazol-1-yl)-3-
 thienyl group, 3-(3-trifluoromethylpyrazol-1-yl)-2-
 thienyl group, 4-(3-trifluoromethylpyrazol-1-yl)-2-
 thienyl group, 5-(1-methyl-3-trifluoromethylpyrazol-5-
 25 yl)-2-thienyl group, 2-(1,4,5-trimethylpyrazol-3-yl)-3-
 thienyl group, 4-(1,5-dimethylpyrazol-3-yl)-3-thienyl
 group, 5-(1-methyl-pyrazol-3-yl)-3-thienyl group, 5-(1-
 n-pentyl-pyrazol-5-yl)-2-thienyl group, 5-(1-n-hexyl-

pyrazol-5-yl)-2-thienyl group, 3-(5-trifluoromethyl-
 pyrazol-1-yl)-2-thienyl group, 4-(5-n-propyl-pyrazol-1-
 yl)-2-thienyl group, 5-(5-n-butyl-pyrazol-1-yl)-2-
 thienyl group, 2-(5-trifluoromethylpyrazol-1-yl)-3-
 5 thienyl group, 4-(5-ethyl-pyrazol-1-yl)-3-thienyl
 group, 5-(5-trifluoromethylpyrazol-1-yl)-3-thienyl
 group, 3-(2-thienyl)-2-thienyl group, 4-(2-thienyl)-2-
 thienyl group, 3-chloro-4-(2-thienyl)-2-thienyl group,
 5-(2-thienyl)-2-thienyl group, 2-(2-thienyl)-3-thienyl
 10 group, 4-(2-thienyl)-3-thienyl group, 5-(2-thienyl)-3-
 thienyl group, 3-(5-chloro-2-thienyl)-2-thienyl group,
 4-(5-bromo-2-thienyl)-2-thienyl group, 5-(5-chloro-2-
 thienyl)-2-thienyl group, 2-(5-chloro-2-thienyl)-3-
 thienyl group, 4-(5-chloro-2-thienyl)-3-thienyl group,
 15 5-(5-chloro-2-thienyl)-3-thienyl group, 3-(4-chloro-2-
 thienyl)-2-thienyl group, 4-(3,4-dichloro-2-thienyl)-2-
 thienyl group, 5-(3,4,5-trichloro-2-thienyl)-2-thienyl
 group, 2-(4-bromo-2-thienyl)-3-thienyl group, 4-(4-
 chloro-2-thienyl)-3-thienyl group, 5-(4-bromo-2-
 20 thienyl)-3-thienyl group or the like.

An indolyl group (which may be substituted on
 the indole ring by at least one group selected from a
 group consisting of a phenylsulfonyl group which may
 have a C1-6 alkyl group as a substituent, phenyl C1-6
 25 alkyl group, C1-6 alkoxy carbonyl group and phenyl
 group) includes an indolyl group (which may be
 substituted on the indole ring by 1 to 3 groups
 selected from a group consisting of a phenylsulfonyl

group which may have 1 to 3 C1-6 alkyl groups as a substituent, phenyl C1-6 alkyl group, C1-6 alkoxy carbonyl group and phenyl group), for example, an indol-1-yl, indol-2-yl, indol-3-yl, indol-4-yl, indol-5-yl, indol-6-yl, indol-7-yl, 1-(benzenesulfonyl)indol-3-yl group, 1-(4-methylbenzenesulfonyl)indol-3-yl group, 1-(3,4-dimethylbenzenesulfonyl)indol-3-yl group, 1-(3,4,6-trimethylbenzenesulfonyl)indol-3-yl group, 1-benzylindol-3-yl group, 1-(2-phenethyl)indol-3-yl group, 1-(1-phenethyl)indol-3-yl group, 1-(3-phenylpropyl)indol-3-yl group, 1-(4-phenylbutyl)indol-3-yl group, 1-(5-phenylpentyl)indol-3-yl group, 1-(6-phenylhexyl)indol-3-yl group, 6-methoxycarbonylindol-3-yl group, 6-ethoxycarbonylindol-3-yl group, 6-n-propoxycarbonylindol-3-yl group, 6-n-butoxycarbonylindol-3-yl group, 6-n-pentyloxycarbonylindol-3-yl group, 6-n-hexyloxycarbonylindol-3-yl group, 2-phenylindol-3-yl group, 1-benzyl-6-phenyl-6-methoxycarbonylindol-3-yl group, 1-benzyl-6-methoxycarbonylindol-3-yl group, 2-phenyl-1-(4-methylbenzenesulfonyl)indol-3-yl group or the like.

A pyrrolyl group (which may be substituted on the pyrrole ring by at least one group selected from a group consisting of a phenyl group which may be substituted by at least one halogen-substituted or unsubstituted C1-6 alkyl group and C1-6 alkyl group) includes a pyrrolyl group (which may be substituted on the pyrrole ring by 1 to 3 groups selected from a group

consisting of a phenyl group which may be substituted by 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups and C1-6 alkyl group), for example, a 2-pyrrolyl group, 1-methyl-2-pyrrolyl group, 1-ethyl-2-pyrrolyl group, 1-n-propyl-2-pyrrolyl group, 1-n-butyl-2-pyrrolyl group, 1-n-pentyl-2-pyrrolyl group, 1-n-hexyl-2-pyrrolyl group, 3-pyrrolyl group, 1-methyl-3-pyrrolyl group, 1-ethyl-3-pyrrolyl group, 1-n-propyl-3-pyrrolyl group, 1-n-butyl-3-pyrrolyl group, 1-n-pentyl-3-pyrrolyl group, 1-n-hexyl-3-pyrrolyl group, 2,5-dimethyl-3-pyrrolyl group, 1-(3-methylphenyl)-2,5-dimethyl-3-pyrrolyl group, 1-(4-methylphenyl)-2,5-dimethyl-3-pyrrolyl group, 1-(3-trifluoromethylphenyl)-2,5-dimethyl-3-pyrrolyl group, 1-(4-trifluoromethylphenyl)-2,5-dimethyl-3-pyrrolyl group, 1-(2,3-dimethylphenyl)-3-pyrrolyl group, 1-(4-methylphenyl)-3-pyrrolyl group, 1-(3-trifluoromethylphenyl)-3-pyrrolyl group, 1-(4-trifluoromethylphenyl)-3-pyrrolyl group, 1-(3-methylphenyl)-3,5-dimethyl-2-pyrrolyl group, 1-(4-methylphenyl)-3,5-dimethyl-2-pyrrolyl group, 1-(3-trifluoromethylphenyl)-3,5-dimethyl-2-pyrrolyl group, 1-(4-trifluoromethylphenyl)-3,5-dimethyl-2-pyrrolyl group, 1-(3-methylphenyl)-2-pyrrolyl group, 1-(2,4,6-trimethylphenyl)-2-pyrrolyl group, 1-(3,5-ditrifluoromethylphenyl)-2-pyrrolyl group, 1-(4-trifluoromethylphenyl)-2-pyrrolyl group or the like.

A coumaryl group includes a 4-coumaryl group, 5-coumaryl group, 6-coumaryl group, 7-coumaryl group or

8-coumaryl group.

Examples of a benzimidazolyl group (which may be substituted on the benzimidazole ring by at least one thienyl group as a substituent) include a 2-
5 benzimidazolyl group, 4-benzimidazolyl group, 5-benzimidazolyl group, 6-benzimidazolyl group, 2-(2-thienyl)-4-benzimidazolyl group, 2-(2-thienyl)-5-benzimidazolyl group, 2-(2-thienyl)-6-benzimidazolyl group, 2-(2-thienyl)-7-benzimidazolyl group, 2-(3-
10 thienyl)-4-benzimidazolyl group, 2-(3-thienyl)-5-benzimidazolyl group, 2-(3-thienyl)-6-benzimidazolyl group, 2-(3-thienyl)-7-benzimidazolyl group or the like.

An oxazolyl group (which may be substituted
15 on the oxazole ring by at least one phenyl group, as a substituent, which may have a halogen atom) includes an oxazolyl group (which may be substituted on the oxazole ring by 1 to 2 phenyl groups, as a substituent, which may have 1 to 5 halogen atoms), for example, a 2-
20 oxazolyl group, 4-oxazolyl group, 5-oxazolyl group, 2-phenyl-4-oxazolyl group, 2-(4-fluorophenyl)-4-oxazolyl group, 2,4-di(4-chlorophenyl)-5-oxazolyl group, 2-(4-chlorophenyl)-4-oxazolyl group, 2-(4-bromophenyl)-4-oxazolyl group, 2-(4-iodophenyl)-4-oxazolyl group, 2-
25 (4-fluorophenyl)-5-oxazolyl group, 2-(4-chlorophenyl)-5-oxazolyl group, 2-(4-bromophenyl)-5-oxazolyl group, 2-(4-iodophenyl)-5-oxazolyl group, 2-(4-fluorophenyl)-4-oxazolyl group, 2-(3,4-chlorophenyl)-4-oxazolyl

group, 2-(4-bromophenyl)-5-oxazolyl group, 2-(4-iodophenyl)-5-oxazolyl group, 2-(2,3,4,5,6-pentafluorophenyl)-4-oxazolyl group, 2-(2,4,6-trichlorophenyl)-4-oxazolyl group, 2-(4-bromophenyl)-5-oxazolyl group, 2-
5 (4-iodophenyl)-5-oxazolyl group or the like.

A thiazolyl group (which may be substituted on the thiazole ring by at least one phenyl group which may be substituted by at least one group selected from a group consisting of a halogen atom, nitro group and
10 phenyl group) includes a thiazolyl group (which may be substituted on the thiazole ring by 1 to 2 phenyl groups which may be substituted by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, nitro group and phenyl group), for
15 example, a 2-thiazolyl group, 4-thiazolyl group, 5-thiazolyl group, 2-phenyl-4-thiazolyl group, 2-phenyl-5-thiazolyl group, 2,4-diphenyl-5-thiazolyl group, 2,5-diphenyl-4-thiazolyl group, 2-(4-chlorophenyl)-4-thiazolyl group, 2-(4-fluorophenyl)-5-thiazolyl group,
20 2-(2,3,4,5,6-pentafluorophenyl)-4-thiazolyl group, 2-(4-bromophenyl)-4-thiazolyl group, 2-(3,4-dichlorophenyl)-4-thiazolyl group, 2-(3,4-dichlorophenyl)-5-thiazolyl group, 2-(3,4-difluorophenyl)-5-thiazolyl group, 2-(2,4,6-trichlorophenyl)-4-thiazolyl group, 2-
25 (3-chloro-4-nitrophenyl)-4-thiazolyl group, 2-(4-phenyl-3-bromophenyl)-4-thiazolyl group, 2-(4-nitrophenyl)-4-thiazolyl group, 2-(4-nitrophenyl)-5-thiazolyl group, 2-(2,4,6-trinitrophenyl)-5-thiazolyl

group, 2-(2,4-dinitrophenyl)-4-thiazolyl group, 2-(4-biphenylyl)-4-thiazolyl group, 2-(4-biphenylyl)-5-thiazolyl group, 4-(4-biphenylyl)-2-thiazolyl group, 2-(4-biphenylyl)-4-thiazolyl group or the like.

5 Examples of a quinolyl group include 2-quinolyl group, 3-quinolyl group, 4-quinolyl group, 5-quinolyl group, 6-quinolyl group, 7-quinolyl group or 8-quinolyl group.

 Examples of a 3,4-dihydrocarbostyril group
10 (which may be substituted on the 3,4-dihydrocarbostyril ring by at least one group selected from a group consisting of a C1-6 alkoxy group, C1-6 alkyl group, and phenyl C1-6 alkoxy group) or carbostyril group (which may be substituted on the carbostyril ring by at
15 least one group selected from a group consisting of a C1-6 alkoxy group, C1-6 alkyl group, and phenyl C1-6 alkoxy group) include a 3,4-dihydrocarbostyril group (which may be substituted on the 3,4-dihydrocarbostyril ring by 1 to 3 groups selected from a group consisting
20 of a C1-6 alkoxy group, C1-6 alkyl group, and phenyl C1-6 alkoxy group) or carbostyril group (which may be substituted on the carbostyril ring by 1 to 3 groups selected from a group consisting of a C1-6 alkoxy group, C1-6 alkyl group, and phenyl C1-6 alkoxy group),
25 for example, a 3,4-dihydrocarbostyril-1-yl group, 3,4-dihydrocarbostyril-3-yl group, 3,4-dihydrocarbostyril-4-yl group, 3,4-dihydrocarbostyril-5-yl group, 3,4-dihydrocarbostyril-6-yl group, 3,4-dihydrocarbostyril-

- 7-yl group, 3,4-dihydrocarbostyryl-8-yl group,
carbostyryl-1-yl group, carbostyryl-3-yl group,
carbostyryl-4-yl group, carbostyryl-5-yl group,
carbostyryl-6-yl group, carbostyryl-7-yl group,
5 carbostyryl-8-yl group, 6-methoxy-3,4-dihydrocarbo-
styryl-5-yl group, 7-methoxy-3,4-dihydrocarbostyryl-5-
yl group, 8-methoxy-3,4-dihydrocarbostyryl-5-yl group,
8-methoxy-1-methyl-3,4-dihydrocarbostyryl-5-yl group,
8-benzyloxy-3,4-dihydrocarbostyryl-5-yl group, 8-
10 methoxycarbostyryl-5-yl group, 8-methoxy-1-methyl-
carbostyryl-5-yl group, 8-benzyloxycarbostyryl-5-yl
group, 8-methoxy-3,4-dihydrocarbostyryl-6-yl group, 6-
methyl-3,4-dihydrocarbostyryl-5-yl group, 6,7-dimethyl-
3,4-dihydrocarbostyryl-5-yl group, 1,5,6-trimethyl-3,4-
15 dihydrocarbostyryl-7-yl group, 6-methylcarbostyryl-5-yl
group, 6,7-dimethylcarbostyryl-5-yl group, 1,5,6-
trimethylcarbostyryl-7-yl group, 8-methoxy-1-methyl-
3,4-dihydrocarbostyryl-6-yl group, 8-benzyloxy-3,4-
dihydrocarbostyryl-6-yl group, 8-methoxycarbostyryl-6-
20 yl group, 8-methoxy-1-methylcarbostyryl-6-yl group, 8-
benzyloxy-carbostyryl-6-yl group, 8-methoxy-3,4-
dihydrocarbostyryl-7-yl group, 8-methoxy-1-methyl-3,4-
dihydrocarbostyryl-7-yl group, 8-benzyloxy-3,4-
dihydrocarbostyryl-7-yl group, 8-ethoxycarbostyryl-7-yl
25 group, 8-methoxy-1-propyl-carbostyryl-7-yl group, 8-(2-
phenylethoxy)carbostyryl-7-yl group or the like.

Examples of an imidazo[2,1-b]thiazolyl group
include such as a 6-imidazo[2,1-b]thiazolyl group, 5-

imidazo[2,1-b]thiazolyl group, 3-imidazo[2,1-b]thiazolyl group and 2-imidazo[2,1-b]thiazolyl group or the like.

Examples of an imidazo[2,1-a]pyridyl group
5 include a 2-imidazo[2,1-a]pyridyl group, 3-imidazo[2,1-a]pyridyl group, 5-imidazo[2,1-a]pyridyl group, 6-imidazo[2,1-a]pyridyl group, 7-imidazo[2,1-a]pyridyl group or the like.

A chromanyl group (which may be substituted
10 on the chroman ring by at least one C1-6 alkyl group) includes a chromanyl group (which may be substituted on the chroman ring by 1 to 3 C1-6 alkyl groups), for example, a 2-methyl-5-chromanyl group, 2,2-dimethyl-5-chromanyl group, 2-methyl-6-chromanyl group, 2-ethyl-6-
15 chromanyl group, 2-n-propyl-6-chromanyl group, 2-n-butyl-6-chromanyl group, 2-n-pentyl-6-chromanyl group, 2-n-hexyl-6-chromanyl group, 2,2-dimethyl-6-chromanyl group, 2,2-diethyl-6-chromanyl group, 2-methyl-7-chromanyl group, 2,2-dimethyl-7-chromanyl group, 2,2,4-
20 trimethyl-6-chromanyl group, 2-methyl-8-chromanyl group, 2,2-dimethyl-8-chromanyl group or the like.

Examples of a 2,3-dihydrobenzofuryl group
include a 2,3-dihydro-4-benzofuryl group, 2,3-dihydro-
5-benzofuryl group, 2,3-dihydro-6-benzofuryl group,
25 2,3-dihydro-7-benzofuryl group or the like.

An amino-substituted C1-6 alkyl group (which may have at least one group selected from a group consisting of a phenyl group (which may be substituted

on the phenyl ring by at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group) and C1-6 alkyl group as a substituent) includes an amino-substituted C1-6 alkyl group (which may have 1 to 2 groups selected from a group consisting of a phenyl group (which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group) and C1-6 alkyl group as a substituent), for example, an aminomethyl group, 2-aminoethyl group, 1-aminoethyl group, 3-aminopropyl group, 4-aminobutyl group, 5-aminopentyl group, 6-aminohexyl group, 2-methyl-3-aminopropyl group, 1,1-dimethyl-2-aminoethyl group, 2-(methylamino)ethyl group, 3-(methylamino)propyl group, 4-(methylamino)butyl group, 5-(methylamino)pentyl group, 6-(methylamino)hexyl group, dimethylaminomethyl group, 2-(diethylamino)ethyl group, 3-(di-n-propylamino)propyl group, 4-(di-n-butylamino)butyl group, 5-(di-n-pentylamino)pentyl group, 2-(di-n-hexylamino)hexyl group, anilinomethyl group, 2-(N-methylanilino)ethyl group, 3-(N-methylanilino)propyl group, 4-anilinobutyl group, 2-(N-methyl-4-chloroanilino)ethyl group, 3-(N-methyl-4-chloroanilino)propyl group, 4-(N-methyl-4-

- chloroanilino)butyl group, 2-(N-methyl-4-fluoro-anilino)ethyl group, 3-(N-methyl-2,3,4,5,6-pentafluoroanilino)propyl group, 2-(3-fluoroanilino)-ethyl group, 3-(N-methyl-3-fluoroanilino)propyl group,
- 5 4-(3-fluoroanilino)butyl group, 2-(N-methyl-2-fluoroanilino)ethyl group, 3-(2-fluoro-anilino)propyl group, 4-(N-methyl-2-fluoroanilino)butyl group, 2-(N-methyl-2-chloroanilino)ethyl group, 3-(N-methyl-2-chloroanilino)propyl group, 4-(N-methyl-2-chloro-
- 10 anilino)butyl group, 2-(N-methyl-2,3-dichloroanilino)-ethyl group, 3-(N-methyl-2,4,6-trichloroanilino)propyl group, 4-(N-methyl-3-chloroanilino)butyl group, 2-(N-methyl-4-trifluoromethylanilino)ethyl group, 2-(4-methylanilino)ethyl group, 2-(N-ethyl-3,5-ditrifluoro-
- 15 methylanilino)ethyl group, 2-(N-methyl-3,5-ditrifluoromethylanilino)ethyl group, 2-(N-methyl-2,4-dimethylanilino)ethyl group, 2-(N-methyl-3,5-dimethoxyanilino)ethyl group, 2-(2,4,6-trimethyl-anilino)ethyl group, 2-(3,4,5-trimethoxyanilino)ethyl
- 20 group, 3-(N-methyl-4-trifluoromethylanilino)propyl group, 4-(N-methyl-4-trifluoromethylanilino)butyl group, 2-(N-methyl-3-trifluoromethylanilino)ethyl group, 3-(N-methyl-3-trifluoromethylanilino)propyl group, 2-(N-methyl-2-trifluoromethylanilino)ethyl
- 25 group, 3-(N-methyl-2-trifluoromethylanilino)propyl group, 4-(N-methyl-2-trifluoromethylanilino)butyl group, 2-(N-methyl-4-trifluoromethoxyanilino)ethyl group, 3-(N-methyl-4-trifluoromethoxyanilino)propyl

group, 4-(4-trifluoromethoxyanilino)butyl group, 2-(N-methyl-3-trifluoromethoxyanilino)ethyl group, 3-(N-methyl-3-trifluoromethoxyanilino)propyl group, 4-(N-methyl-3-trifluoromethoxyanilino)butyl group, 2-(N-methyl-2-trifluoromethoxyanilino)ethyl group, 3-(N-methyl-2-trifluoromethoxyanilino)propyl group, 4-(N-methyl-2-trifluoromethoxyanilino)butyl group, 2-(N-methyl-4-methoxyanilino)ethyl group, 3-(N-methyl-4-methoxyanilino)propyl group, 4-(N-methyl-4-methoxyanilino)butyl group, 2-(N-methyl-3-methoxyanilino)ethyl group, 3-(N-methyl-3-methoxyanilino)propyl group, 4-(3-methoxyanilino)butyl group, 2-(2-methoxyanilino)ethyl group, 3-(N-methyl-2-methoxyanilino)propyl group, 4-(N-methyl-2-methoxyanilino)butyl group or the like.

Examples of a 1,4-dioxazaspiro[4,5]decyl group (which may be substituted on the 1,4-dioxazaspiro[4,5]decane ring by at least one oxo group as a substituent) include a 1,4-dioxo-8-azaspiro[4,5]dec-8-yl group, 7-oxo-1,4-dioxo-8-azaspiro[4,5]dec-8-yl group, 6-oxo-1,4-dioxo-8-azaspiro[4,5]dec-8-yl group or the like.

A homopiperazinyll group (which may be substituted on the homopiperazine ring by at least one group selected from a group consisting of a C1-6 alkoxycarbonyl group, phenyl C1-6 alkoxycarbonyl group and phenyl-substituted or unsubstituted phenyl group) includes a homopiperazinyll group (which may be substituted on the homopiperazine ring by 1 to 3 groups

selected from a group consisting of a C1-6 alkoxy-carbonyl group, phenyl C1-6 alkoxy-carbonyl group and phenyl-substituted or unsubstituted phenyl group), for example, a 1-homopiperazinyl group, 2-homopiperazinyl

5 group, 3-homopiperazinyl group, 4-homopiperazinyl group, 5-homopiperazinyl group, 6-homopiperazinyl group, 7-homopiperazinyl group, 4-methoxycarbonyl-1-homopiperazinyl group, 4-ethoxycarbonyl-1-homopiperazinyl group, 4-n-propoxycarbonyl-1-

10 homopiperazinyl group, 4-tert-butoxycarbonyl-1-homopiperazinyl group, 4-n-pentyloxycarbonyl-1-homopiperazinyl group, 4-n-hexyloxycarbonyl-1-homopiperazinyl group, 4-benzyloxyoxycarbonyl-1-homopiperazinyl group, 4-(2-phenylethoxycarbonyl)-1-

15 homopiperazinyl group, 4-(3-phenylpropoxycarbonyl)-1-homopiperazinyl group, 4-(4-phenylbutoxycarbonyl)-1-homopiperazinyl group, 4-(5-phenylpentyloxycarbonyl)-1-homopiperazinyl group, 4-(6-phenylhexyloxycarbonyl)-1-homopiperazinyl group, 4-(4-biphenyl)-1-homo-

20 piperazinyl group, 3,4-diphenyl-1-homopiperazinyl group, 3,4,5-triphenyl-1-homopiperazinyl group, 3-phenyl-4-methoxycarbonyl-1-homopiperazinyl group or the like.

A piperazinyl group (which may be substituted

25 on the piperazine ring by at least one group selected from a group consisting of an oxo group, C1-6 alkyl group and phenyl C1-6 alkyl group (which may be substituted on the phenyl ring by at least one halogen-

substituted or unsubstituted C1-6 alkyl group)) includes a piperaziny1 group (which may be substituted on the piperazine ring by 1 to 3 groups selected from a group consisting of an oxo group, C1-6 alkyl group and phenyl

5 C1-6 alkyl group (which may be substituted on the phenyl ring by 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups)), for example, a piperazin-1-yl group, piperazin-2-yl group, piperazin-3-yl group, piperazin-4-yl group, 1-methyl-piperazin-4-

10 yl group, 1-benzyl-piperazin-4-yl group, 1,2-dimethyl-piperazin-4-yl group, 1-benzyl-2,6-dimethyl-piperazin-4-yl group, 1-ethyl-2-oxopiperazin-4-yl group, 1-n-propyl-2-oxopiperazin-4-yl group, 1-isopropyl-2-oxopiperazin-4-yl group, 1-n-butyl-2-oxopiperazin-4-yl

15 group, 1-tert-butyl-2-oxopiperazin-4-yl group, 1-n-pentyl-2-oxopiperazin-4-yl group, 1-n-hexyl-2-oxopiperazin-4-yl group, 1-(4-benzyl)-2-oxopiperazin-4-yl group, 1-(2,4-dimethylbenzyl)piperazin-4-yl group, 1-(2,4,6-trimethylbenzyl)piperazin-4-yl group, 1-(3,5-

20 ditrifluoromethylbenzyl)piperazin-4-yl group, 1-(4-methylbenzyl)-2-oxopiperazin-4-yl group, 1-(4-trifluoromethylbenzyl)-2-oxopiperazin-4-yl group, 1-[2-(4-trifluoromethylphenyl)ethyl]-2-oxopiperazin-4-yl group, 1-[3-(4-trifluoromethylphenyl)propyl]-2-

25 oxopiperazin-4-yl group, 1-[4-(4-trifluoromethylphenyl)butyl]-2-oxopiperazin-4-yl group, 1-[5-(4-trifluoromethylphenyl)pentyl]-2-oxopiperazin-4-yl group, 1-[6-(4-trifluoromethylphenyl)hexyl]-2-

oxopiperazin-4-yl group or the like.

Examples of a piperidyl group (which may be substituted on the piperidine ring by at least one oxo group as a substituent) includes a 1-piperidyl group,
 5 2-piperidyl group, 3-piperidyl group, 4-piperidyl group, 2-oxo-1-piperidyl group, 3-oxo-1-piperidyl group, 4-oxo-1-piperidyl group or the like.

A pyrrolidinyl group (which may be substituted on the pyrrolidine ring by at least one phenoxy
 10 C1-6 alkyl group which may have a halogen-substituted or unsubstituted C1-6 alkoxy group as a substituent) includes a pyrrolidinyl group (which may be substituted on the pyrrolidine ring by 1 to 3 phenoxy C1-6 alkyl
 groups which may have 1 to 3 halogen-substituted or
 15 unsubstituted C1-6 alkoxy groups as a substituent), for example, a pyrrolidin-1-yl group, pyrrolidin-2-yl group, pyrrolidin-3-yl group, 2-phenoxyethyl-
 pyrrolidin-1-yl group, 3-phenoxyethylpyrrolidin-1-yl group, 2-(2,4-dimethoxyphenoxyethyl)pyrrolidin-1-yl
 20 group, 2-(2,4,6-trimethoxyphenoxyethyl)pyrrolidin-1-yl group, 2,3-diphenoxymethylpyrrolidin-1-yl group, 1,3,4-
 phenoxyethylpyrrolidin-2-yl group, 2-(4-methoxyphenoxyethyl)pyrrolidin-1-yl group, 2-(4-trifluoromethoxyphenoxyethyl)pyrrolidin-1-yl group, 2-
 25 [2-(3-trifluoromethoxyphenoxy)ethyl]pyrrolidin-1-yl group, 2-[3-(4-trifluoromethoxy)propyl]-
 pyrrolidin-1-yl group, 2-[4-(4-trifluoromethoxyphenoxy)butyl]pyrrolidin-1-yl group, 2-[5-(4-trifluoro-

methoxyphenoxy)pentyl]pyrrolidin-1-yl group, 2-[6-(4-trifluoromethoxyphenoxy)hexyl]pyrrolidin-1-yl group, 3-(4-methoxyphenoxyethyl)pyrrolidin-1-yl group, 3-(3-trifluoromethoxyphenoxyethyl)pyrrolidin-1-yl group, 3-
5 (4-trifluoromethoxyphenoxyethyl)pyrrolidin-1-yl group or the like.

Examples of an isoindolinyl group include a 2-isoindolinyl group, 1-isoindolinyl group, 3-isoindolinyl group, 4-isoindolinyl group, 5-
10 isoindolinyl group, 6-isoindolinyl group or the like.

Examples of an oxazolidinyl group (which may be substituted on the oxazolidine ring by at least one oxo group as a substituent) include a 2-oxazolidinyl group, 3-oxazolidinyl group, 4-oxazolidinyl group, 5-
15 oxazolidinyl group, 2-oxo-3-oxazolidinyl group or the like.

A benzo-1,3-oxazolidinyl group (which may be substituted on the benzo-1,3-oxazolidine ring by at least one group selected from a group consisting of an
20 oxo group, halogen atom and phenyl group as a substituent) includes a benzo-1,3-oxazolidinyl group (which may be substituted on the benzo-1,3-oxazolidine ring by 1 to 3 groups selected from a group consisting of an oxo group, halogen atom and phenyl group as a
25 substituent), for example, a benzo-1,3-oxazolidin-2-yl group, benzo-1,3-oxazolidin-3-yl group, benzo-1,3-oxazolidin-4-yl group, benzo-1,3-oxazolidin-5-yl group, benzo-1,3-oxazolidin-6-yl group, benzo-1,3-oxazolidin-

7-yl group, 2-oxobenzo-1,3-oxazolidin-3-yl group, 4-chloro-2-oxobenzo-1,3-oxazolidin-3-yl group, 5-chloro-2-oxobenzo-1,3-oxazolidin-3-yl group, 5-bromo-2-oxobenzo-1,3-oxazolidin-3-yl group, 5-fluoro-benzo-1,3-oxazolidin-3-yl group, 6-phenyl-benzo-1,3-oxazolidin-3-yl group, 5-bromo-6-phenyl-2-oxobenzo-1,3-oxazolidin-3-yl group, 6-chloro-2-oxobenzo-1,3-oxazolidin-3-yl group, 7-chloro-2-oxobenzo-1,3-oxazolidin-3-yl group, 5-bromo-2-oxobenzo-1,3-oxazolidin-3-yl group, 4-phenyl-2-oxobenzo-1,3-oxazolidin-3-yl group, 5-phenyl-2-oxobenzo-1,3-oxazolidin-3-yl group, 6-phenyl-2-oxobenzo-1,3-oxazolidin-3-yl group, 7-phenyl-2-oxobenzo-1,3-oxazolidin-3-yl group or the like.

An imidazolidinyl group (which may be substituted on the imidazolidine ring by at least one group selected from a group consisting of an oxo group, phenyl C1-6 alkyl group (which may be substituted on the phenyl ring by 1 to 3 groups selected from a group consisting of a halogen atom and C1-6 alkoxy group) and phenyl group) includes an imidazolidinyl group (which may be substituted on the imidazolidine ring by 1 to 3 groups selected from a group consisting of an oxo group, phenyl C1-6 alkyl group (which may be substituted on the phenyl ring by 1 to 3 groups selected from a group consisting of a halogen atom and a C1-6 alkoxy group) and phenyl group), for example, an imidazolidin-1-yl group, imidazolidin-2-yl group, imidazolidin-3-yl group, imidazolidin-4-yl group,

- imidazolidin-5-yl group, 3-benzyl-imidazolidin-1-yl group, 3,4-dibenzyl-2-oxoimidazolidin-1-yl group, 2-oxoimidazolidin-1-yl group, 3-benzyl-2-oxoimidazolidin-1-yl group, 3-(2-fluorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3-fluorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-fluorobenzyl)-2-oxoimidazolidin-1-yl group, 3-phenyl-2-oxoimidazolidin-1-yl group, 3-(3,4-difluorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3,5-difluorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3,4,5-
- 10 trifluorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(2-chlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3-chlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-chlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(2,3-dichlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3,4-
- 15 dichlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3,5-dichlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3,4,5-trichlorobenzyl)-2-oxoimidazolidin-1-yl group, 3-(2-bromobenzyl)-2-oxoimidazolidin-1-yl group, 3-(3-bromobenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-
- 20 bromobenzyl)-2-oxoimidazolidin-1-yl group, 3-(2-methoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(3-methoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-methoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(2,4-dimethoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-
- 25 (2,4,6-trimethoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(3,5-dimethoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-ethoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-isopropoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-n-

butoxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-n-pentyloxybenzyl)-2-oxoimidazolidin-1-yl group, 3-(4-hexyloxybenzyl)-2-oxoimidazolidin-1-yl group, 3-[2-(3-methoxy-4-chlorophenyl)ethyl]-2-oxoimidazolidin-1-yl
 5 group, 3-[3-(4-chlorophenyl)propyl]-2-oxoimidazolidin-1-yl group, 3-[4-(4-chlorophenyl)butyl]-2-oxoimidazolidin-1-yl group, 3-[5-(4-chlorophenyl)-pentyl]-2-oxoimidazolidin-1-yl group, 3-[6-(4-chlorophenyl)hexyl]-2-oxoimidazolidin-1-yl group, 2-
 10 phenylidazolidine-1-yl group, 3-phenyl-2-benzylidazolidine-1-yl group, 3-phenyl-4-benzyl-2-oxoidazolidine-1-yl group, 3-phenyl-5-benzyl-2-oxoidazolidine-1-yl group, 4-phenyl-2-oxoidazolidine-1-yl group or the like.

15 A benzimidazolidinyl group (which may be substituted on the benzimidazolidine ring by at least one group selected from a group consisting of an oxo group, halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group, amino group which may have a
 20 C1-6 alkyl group as a substituent, C1-6 alkoxy carbonyl group and, piperidyl group which may be substituted on the piperidine ring by at least one group selected from a group consisting of a C1-6 alkyl group, phenyl group which may be substituted on the phenyl ring by 1 to 3
 25 halogen atoms, C1-6 alkoxy carbonyl group and phenyl C1-6 alkoxy carbonyl group as a substituent) includes a benzimidazolidinyl group (which may be substituted on the benzimidazolidine ring by 1 to 3 groups selected

from a group consisting of an oxo group, halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group, amino group which may have 1 to 2 C1-6 alkyl groups as a substituent, C1-6 alkoxycarbonyl group, and piperidyl

5 group which may be substituted on the piperidine ring by 1 to 3 groups selected from a group consisting of a C1-6 alkyl group, phenyl group which may be substituted on the phenyl ring by 1 to 3 halogen atoms, C1-6 alkoxycarbonyl group and phenyl C1-6 alkoxycarbonyl

10 group as a substituent), for example, a benzimidazolidin-1-yl group, benzimidazolidin-2-yl group, benzimidazolidin-3-yl group, benzimidazolidin-4-yl group, benzimidazolidin-5-yl group, benzimidazolidin-6-yl group, benzimidazolidin-7-yl

15 group, 2-oxobenzimidazolidin-1-yl group, 3-methyl-2-oxobenzimidazolidin-1-yl group, 3-methyl-benzimidazolidin-1-yl group, 6-dimethylamino-benzimidazolidin-1-yl group, 6-ethoxycarbonyl-benzimidazolidin-1-yl group, 3-(4-phenylpiperidin-4-

20 yl)benzimidazolidin-1-yl group, 4-fluoro-benzimidazolidin-1-yl group, 3-ethyl-2-oxobenzimidazolidin-1-yl group, 3-n-propyl-2-oxobenzimidazolidin-1-yl group, 3-n-butyl-2-oxobenzimidazolidin-1-yl group, 3-n-pentyl-2-

25 oxobenzimidazolidin-1-yl group, 3-n-hexyl-2-oxobenzimidazolidin-1-yl group, 3-methyl-6-fluoro-2-oxobenzimidazolidin-1-yl group, 3-methyl-4-fluoro-2-oxobenzimidazolidin-1-yl group, 3-methyl-5-fluoro-2-

- oxobenzimidazolidin-1-yl group, 3-methyl-7-fluoro-2-
oxobenzimidazolidin-1-yl group, 3-methyl-6-chloro-2-
oxobenzimidazolidin-1-yl group, 3-methyl-5-chloro-2-
oxobenzimidazolidin-1-yl group, 3-methyl-4-chloro-2-
5 oxobenzimidazolidin-1-yl group, 3-methyl-5-chloro-2-
oxobenzimidazolidin-1-yl group, 3-methyl-7-chloro-2-
oxobenzimidazolidin-1-yl group, 3-methyl-6-bromo-2-
oxobenzimidazolidin-1-yl group, 3-methyl-4-bromo-2-
oxobenzimidazolidin-1-yl group, 3-methyl-5-bromo-2-
10 oxobenzimidazolidin-1-yl group, 3-methyl-7-bromo-2-
oxobenzimidazolidin-1-yl group, 3-ethyl-6-fluoro-2-
oxobenzimidazolidin-1-yl group, 3-isopropyl-6-fluoro-2-
oxobenzimidazolidin-1-yl group, 3-n-hexyl-6-fluoro-2-
oxobenzimidazolidin-1-yl group, 3-ethyl-6-chloro-2-
15 oxobenzimidazolidin-1-yl group, 3-isopropyl-6-chloro-2-
oxobenzimidazolidin-1-yl group, 3-n-hexyl-6-chloro-2-
oxobenzimidazolidin-1-yl group, 3-ethyl-5-chloro-2-
oxobenzimidazolidin-1-yl group, 3-isopropyl-5-chloro-2-
oxobenzimidazolidin-1-yl group, 3-tert-butyl-5-chloro-
20 2-oxobenzimidazolidin-1-yl group, 3-methyl-6-
ethoxycarbonyl-2-oxobenzimidazolidin-1-yl group, 3-
isopropyl-6-ethoxycarbonyl-2-oxobenzimidazolidin-1-yl
group, 3-n-propyl-6-ethoxycarbonyl-2-
oxobenzimidazolidin-1-yl group, 3-methyl-6-
25 trifluoromethyl-2-oxobenzimidazolidin-1-yl group, 5-
trifluoromethyl-2-oxobenzimidazolidin-1-yl group, 3-
methyl-5-trifluoromethyl-2-oxobenzimidazolidin-1-yl
group, 3-isopropyl-5-trifluoromethyl-2-

- oxobenzimidazolidin-1-yl group, 3-(4-phenylpiperidin-1-yl)-2-oxobenzimidazolidin-1-yl group, 3-(4-phenylpiperidin-1-yl)-5-trifluoromethyl-2-oxobenzimidazolidin-1-yl group, 3-(4-phenylpiperidin-1-yl)-6-trifluoromethyl-2-oxobenzimidazolidin-1-yl group, 3-methyl-6-dimethylamino-2-oxobenzimidazolidin-1-yl group, 3-ethyl-6-dimethylamino-2-oxobenzimidazolidin-1-yl group, 3-methyl-6-amino-2-oxobenzimidazolidin-1-yl group, 3-isopropyl-6-dimethylamino-2-oxobenzimidazolidin-1-yl group, 3-[4-(3-fluorophenyl)piperidin-1-yl]-2-oxobenzimidazolidin-1-yl group, 3-[4-(4-fluorophenyl)piperidin-1-yl]-2-oxobenzimidazolidin-1-yl group, 3-[4-(3-chlorophenyl)piperidin-1-yl]-2-oxobenzimidazolidin-1-yl group, 3-[4-(4-chlorophenyl)piperidin-1-yl]-2-oxobenzimidazolidin-1-yl group, 3-[4-(2,3-difluorophenyl)piperidin-1-yl]-5-chloro-2-oxobenzimidazolidin-1-yl group, 3-[4-(4-fluorophenyl)piperidin-1-yl]-5-chloro-2-oxobenzimidazolidin-1-yl group, 3-[4-(2,4,6-trichlorophenyl)piperidin-1-yl]-5-chloro-2-oxobenzimidazolidin-1-yl group, 3-[4-(4-chlorophenyl)piperidin-1-yl]-5-chloro-2-oxobenzimidazolidin-1-yl group, 3-[4-(3-fluorophenyl)piperidin-1-yl]-6-chloro-2-oxobenzimidazolidin-1-yl group, 3-[4-(4-iodophenyl)piperidin-1-yl]-6-chloro-2-oxobenzimidazolidin-1-yl group, 3-[4-(3-bromophenyl)piperidin-1-yl]-6-chloro-2-oxobenzimidazolidin-1-yl group, 3-[1-methylpiperidin-4-yl]-6-chloro-2-oxobenzimidazolidin-1-yl group, 3-(piperidin-4-yl)-2-

- oxobenzimidazolidin-1-yl group, 3-(1-tert-butoxy-carbonylpiperidin-4-yl)-2-oxobenzimidazolidin-1-yl group, 3-(benzyloxycarbonylpiperidin-4-yl)-2-oxobenzimidazolidin-1-yl group, 3-(piperidin-4-yl)-6-
- 5 fluoro-2-oxobenzimidazolidin-1-yl group, 3-(1-tert-butoxycarbonylpiperidin-4-yl)-6-fluoro-2-oxobenzimidazolidin-1-yl group, 3-(1-benzyloxycarbonylpiperidin-4-yl)-6-fluoro-2-oxobenzimidazolidin-1-yl group, 3-(piperidin-4-yl)-6-chloro-2-
- 10 oxobenzimidazolidin-1-yl group, 3-(1-tert-butoxycarbonylpiperidin-4-yl)-6-chloro-2-oxobenzimidazolidin-1-yl group, 3-(1-benzyloxycarbonyl-4-piperidin-4-yl)-6-chloro-2-oxobenzimidazolidin-1-yl group, 3-(1,2-dimethylpiperidin-4-yl)benzimidazolidin-1-yl group, 3-
- 15 (1-benzyloxycarbonyl-2-methylpiperidin-4-yl)benzimidazolidin-1-yl group, 3-(1,2,6-trimethylpiperidin-4-yl) benzimidazolidin-1-yl group or the like.

A phthalimide group includes, for example, a

20 phthalimid-2-yl group or the like.

An indolinyl group (which may be substituted by at least one group selected from a group consisting of a C1-6 alkyl group, halogen atom and oxo group as a substituent on the indoline ring) includes an indolinyl

25 group (which may have 1 to 3 groups selected from a group consisting of a C1-6 alkyl group, halogen atom and oxo group as a substituent on the indoline ring), for example, an indolinin-1-yl group, indolinin-2-yl

group, indolinin-3-yl group, indolinin-4-yl group, indolinin-5-yl group, indolinin-6-yl group, indolinin-7-yl group, 3-methyl-indolin-1-yl group, 3,8-dibromoindolin-1-yl group, 2-oxoindolin-1-yl group
 5 (another name: oxyindol-1-yl group), 3-methyl-2-oxoindolin-1-yl group, 3,3-dimethyl-2-oxoindolin-1-yl group, 3-ethyl-2-oxoindolin-1-yl group, 3-n-propyl-2-oxoindolin-1-yl group, 3-n-butyyl-2-oxoindolin-1-yl group, 3-n-pentyl-2-oxoindolin-1-yl group, 3-fluoro-2-oxoindolin-1-yl group, 3,3-difluoro-2-oxoindolin-1-yl group, 3-chloro-2-oxoindolin-1-yl group, 3,3-dichloro-2-oxoindolin-1-yl group or the like.
 10

An example of a 2,3-dihydrobenzisothiazolyl group (which may have at least one oxo group as a
 15 substituent on the 2,3-dihydrobenzisothiazole ring) includes a 3-benzisothiazolydinon-1,1-dioxide-2-yl group or the like.

Examples of a 1H-2,4-benzoxazinyl group (which may have at least one oxo group as a substituent
 20 on the 1H-2,4-benzoxazine ring) include a 1H-2,4-benzoxazin-3(4H)-on-4-yl group, 1H-2,4-benzoxazin-1,3(4H)-dion-4-yl group or the like.

A phenoxy C1-6 alkyl group which may have a halogen atom as a substituent on the phenyl ring
 25 includes a phenoxy C1-6 alkyl group which may have 1 to 5 halogen atoms, for example, a phenoxymethyl group, 2-fluorophenoxymethyl group, 3-fluorophenoxymethyl group, 3,4-difluorophenoxymethyl group, 3,5-

difluorophenoxymethyl group, 2,3,4,5,6-
 pentafluorophenoxymethyl group, 2-chlorophenoxymethyl
 group, 3-chlorophenoxymethyl group, 4-chlorophenoxy-
 methyl group, 3,4-dichlorophenoxymethyl group, 3,5-
 5 dichlorophenoxymethyl group, 2-phenoxyethy group, 1-
 phenoxyethy group, 3-phenoxypropyl group, 4-
 phenoxybutyl group, 5-phenoxypropyl group, 6-phenoxy
 group, 2-(2,4,6-chlorophenoxy)ethyl group, 3-(4-
 iodophenoxy)propyl group, 4-(4-bromophenoxy)butyl
 10 group, 5-(4-chlorophenoxy)pentyl group, 6-(4-
 chlorophenoxy)hexyl group or the like.

A phenyl C2-6 alkenyl group which may have a
 halogen atom as a substituent on the phenyl ring
 includes a phenyl C2-6 alkenyl group which has 1 to 2
 15 double bonds and may have 1 to 5 halogen atoms as a
 substituent on the phenyl ring, for example, a 3-
 phenyl-2-propenyl group (trivial name: cinnamyl group),
 4-phenyl-2-butenyl group, 4-phenyl-3-butenyl group, 4-
 phenyl-1,3-butadienyl group, 5-phenyl-1,3,5-hexatrienyl
 20 group, 3-(2-fluorophenyl)-2-propenyl group, 3-(3-
 fluorophenyl)-2-propenyl group, 3-(4-fluorophenyl)-2-
 propenyl group, 3-(2,3-difluorophenyl)-2-propenyl
 group, 3-(2,3,4,5,6-pentafluorophenyl)-2-propenyl
 group, 3-(3,4-difluorophenyl)-2-propenyl group, 3-(3,5-
 25 difluorophenyl)-2-propenyl group, 3-(2,4,6-
 trichlorophenyl)-2-propenyl group, 3-(3-chlorophenyl)-
 2-propenyl group, 3-(4-chlorophenyl)-2-propenyl group,
 3-(2,3-dichlorophenyl)-2-propenyl group, 3-(2,4-

dichlorophenyl)-2-propenyl group, 3-(3,4-dichlorophenyl)-2-propenyl group, 3-(3,5-dichlorophenyl)-2-propenyl group, 3-(2-bromophenyl)-2-propenyl group, 3-(3-bromophenyl)-2-propenyl group, 3-
 5 (4-bromophenyl)-2-propenyl group, 4-(4-chlorophenyl)-2-butenyl group, 4-(4-chlorophenyl)-3-butenyl group, 5-(4-chlorophenyl)-2-pentenyl group, 5-(4-chlorophenyl)-4-pentenyl group, 5-(4-chlorophenyl)-3-pentenyl group, 6-(4-chlorophenyl)-5-hexenyl group, 6-(4-chlorophenyl)-
 10 4-hexenyl group, 6-(4-chlorophenyl)-3-hexenyl group, 6-(4-chlorophenyl)-3-hexenyl group or the like.

A phenyl group which may be substituted on the phenyl ring by at least one group selected from a group consisting of a halogen atom, halogen-substituted
 15 or unsubstituted C1-6 alkyl group, halogen-substituted or unsubstituted C1-6 alkoxy group and phenyl group as a substituent includes a phenyl group which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a
 20 halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group, halogen-substituted or unsubstituted C1-6 alkoxy group and phenyl group as a substituent, for example, a phenyl group, 2-fluorophenyl group, 3-fluorophenyl group, 4-fluorophenyl group, 2-chlorophenyl group, 3-chlorophenyl group, 4-chlorophenyl group, 2-bromophenyl group, 3-bromophenyl
 25 group, 4-bromophenyl group, 2-iodophenyl group, 3-iodophenyl group, 4-iodophenyl group, 2,3-difluoro-

- phenyl group, 3,4-difluorophenyl group, 3,5-difluorophenyl group, 2,4-difluorophenyl group, 2,6-difluorophenyl group, 2,3-dichlorophenyl group, 3,4-dichlorophenyl group, 3,5-dichlorophenyl group, 2,4-dichlorophenyl group, 2,6-dichlorophenyl group, 3,4,5-trifluorophenyl group, 3,4,5-trichlorophenyl group, 2,4,6-trifluorophenyl group, 2,4,6-trichlorophenyl group, 2-fluoro-4-bromophenyl group, 4-chloro-3-fluorophenyl group, 2,3,4-trichlorophenyl group, 3,4,5-trifluorophenyl group, 2,4,6-tribromophenyl group, 4-n-butylphenyl group, 2,4-dimethylphenyl group, 2,3-dimethylphenyl group, 2,6-dimethylphenyl group, 3,5-dimethylphenyl group, 2,5-dimethylphenyl group, 2,4,6-trimethylphenyl group, 3,5-ditrifluoromethylphenyl group, 4-n-butoxyphenyl group, 2,4-dimethoxyphenyl group, 2,3-dimethoxyphenyl group, 2,6-dimethoxyphenyl group, 3,5-dimethoxyphenyl group, 2,5-dimethoxyphenyl group, 2,4,6-trimethoxyphenyl group, 3,5-ditrifluoromethoxyphenyl group, 3-chloro-4-methoxyphenyl group, 2-chloro-4-trifluoromethoxyphenyl group, 3-methyl-4-fluorophenyl group, 4-bromo-3-trifluoromethylphenyl group, 2-methylphenyl group, 3-methylphenyl group, 4-methylphenyl group, 2-methyl-3-chlorophenyl group, 3-methyl-4-chlorophenyl group, 2-chloro-4-methylphenyl group, 2-methyl-3-fluorophenyl group, 2-trifluoromethylphenyl group, 3-trifluoromethylphenyl group, 4-trifluoromethylphenyl group, 2-pentafluoroethylphenyl group, 3-pentafluoroethylphenyl group, 4-pentafluoro-

- ethylphenyl group, 2-isopropylphenyl group, 3-isopropylphenyl group, 4-isopropylphenyl group, 2-tert-butylphenyl group, 3-tert-butylphenyl group, 4-tert-butylphenyl group, 2-sec-butylphenyl group, 3-sec-
- 5 butylphenyl group, 4-sec-butylphenyl group, 2-n-heptafluoropropylphenyl group, 3-n-heptafluoropropylphenyl group, 4-n-heptafluoropropylphenyl group, 4-pentylphenyl group, 4-hexylphenyl group, 2-methoxyphenyl group, 3-methoxyphenyl group, 4-methoxyphenyl
- 10 group, 3-chloro-2-methoxyphenyl group, 2-fluoro-3-methoxyphenyl group, 2-fluoro-4-methoxyphenyl group, 2,6-dimethoxyphenyl group, 2,3,4-trifluorophenyl group, 2,3,4,5,6-pentafluorophenyl group, 2-trifluoromethoxyphenyl group, 3-trifluoromethoxyphenyl group, 4-
- 15 trifluoromethoxyphenyl group, 3-fluoro-2-trifluoromethoxyphenyl group, 2-fluoro-3-trifluoromethoxyphenyl group, 3-fluoro-4-trifluoromethoxyphenyl group, 3-chloro-2-trifluoromethoxyphenyl group, 2-chloro-3-trifluoromethoxyphenyl group, 3-chloro-4-trifluoro-
- 20 methoxyphenyl group, 2-pentafluoroethoxyphenyl group, 3-pentafluoroethoxyphenyl group, 4-pentafluoroethoxyphenyl group, 3-chloro-2-pentafluoroethoxyphenyl group, 2-chloro-3-pentafluoroethoxyphenyl group, 3-chloro-4-pentafluoroethoxyphenyl group, 2-isopropoxyphenyl
- 25 group, 3-isopropoxyphenyl group, 4-isopropoxyphenyl group, 2-tert-butoxyphenyl group, 3-tert-butoxyphenyl group, 4-tert-butoxyphenyl group, 2-sec-butoxyphenyl group, 3-sec-butoxyphenyl group, 4-sec-butoxyphenyl

group, 2-n-heptafluoropropoxyphenyl group, 3-n-heptafluoropropoxyphenyl group, 4-n-heptafluoropropoxyphenyl group, 4-n-pentoxyphenyl group, 4-n-hexyloxyphenyl group, 4-biphenylyl group, 3-biphenylyl group,
 5 2-biphenylyl or the like.

A 1,3-thiazolidinyl group (which may be substituted on the 1,3-thiazolidine ring by at least one group selected from a group consisting of an oxo group and phenyl C1-6 alkylidene group which may have a
 10 halogen-substituted or unsubstituted C1-6 alkyl group on the phenyl group as a substituent) includes a 1,3-thiazolidinyl (which may be substituted on the 1,3-thiazolidine ring by 1 to 3 groups selected from a group consisting of an oxo group and phenyl C1-6
 15 alkylidene group which may 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups as a substituent on the phenyl group), for example, a 1,3-thiazolidine-2-yl group, 1,3-thiazolidine-3-yl group, 1,3-thiazolidine-4-yl group, 1,3-thiazolidine-5-yl group, 1,3-
 20 thiazolidine-2,4-dion-3-yl group, 5-benzylidene-1,3-thiazolidine-3-yl group, 5-benzylidene-1,3-thiazolidine-2-on-3-yl group, 5-benzylidene-1,3-thiazolidine-4-on-3-yl group, 5-(2-methylbenzylidene)-1,3-thiazolidine-3-yl group, 5-(2,4-dimethyl-
 25 benzylidene)-1,3-thiazolidine-3-yl group, 5-(2,4,6-trimethylbenzylidene)-1,3-thiazolidine-3-yl group, 5-benzylidene-1,3-thiazolidine-2,4-dion-3-yl group, 5-(2-trifluoromethylbenzylidene)-1,3-thiazolidine-2,4-dion-

3-yl group, 5-(3,5-ditrifluoromethylbenzylidene)-1,3-thiazolidine-2,4-dion-3-yl group, 5-(4-tritrifluoromethylbenzylidene)-1,3-thiazolidine-2,4-dion-3-yl group, 5-[2-(4-tritrifluoromethylphenyl)ethylidene]-1,3-thiazolidine-2,4-dion-3-yl group, 5-[3-(4-tritrifluoromethylphenyl)propylidene]-1,3-thiazolidine-2,4-dion-3-yl group, 5-[4-(4-tritrifluoromethylphenyl)butylidene]-1,3-thiazolidine-2,4-dion-3-yl group, 5-[5-(4-tritrifluoromethylphenyl)pentylidene]-1,3-thiazolidine-2,4-dion-3-yl group, 5-[6-(4-trifluoromethylphenyl)hexylidene]-1,3-thiazolidine-2,4-dion-3-yl group or the like.

A halogen-substituted or unsubstituted phenyl group includes a phenyl group which may be substituted by 1 to 5 halogen atoms, for example, a phenyl group, 2-fluorophenyl group, 3-fluorophenyl group, 4-fluorophenyl group, 2-chlorophenyl group, 3-chlorophenyl group, 4-chlorophenyl group, 2-bromophenyl group, 3-bromophenyl group, 4-bromophenyl group, 2-iodophenyl group, 3-iodophenyl group, 4-iodophenyl group, 2,3-difluorophenyl group, 3,4-difluorophenyl group, 3,5-difluorophenyl group, 2,4-difluorophenyl group, 2,6-difluorophenyl group, 2,3-dichlorophenyl group, 3,4-dichlorophenyl group, 3,5-dichlorophenyl group, 2,4-dichlorophenyl group, 2,6-dichlorophenyl group, 3,4,5-trifluorophenyl group, 3,4,5-trichlorophenyl group, 2,4,6-trifluorophenyl group, 2,4,6-trichlorophenyl group, 2-fluoro-4-bromophenyl group, 4-

chloro-3-fluorophenyl group, 2,3,4-trichlorophenyl group, 3,4,5-trifluorophenyl group, 2,4,6-trifluorophenyl group, 2,3,4,5,6-pentafluorophenyl group or the like.

- 5 A phenyl C1-6 alkyl group which may have a phenyl group as a substituent on the phenyl ring includes a phenyl C1-6 alkyl group which may have 1 to 3 phenyl groups as a substituent on the phenyl ring, for example, a benzyl group, 2-phenylethyl group, 1-
10 phenylethyl group, 3-phenylpropyl group, 4-phenylbutyl group, 5-phenylpentyl group, 6-phenylhexyl group, 2-methyl-3-phenylpropyl group, 1,1-dimethyl 2-phenylethyl group, 3-phenylbenzyl group, 2-phenylbenzyl group, 4-phenylbenzyl group, 2,4-diphenylbenzyl group, 2,4,6-
15 triphenylbenzyl group or the like.

- A phenyl group (which may be substituted on the phenyl ring by at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-
20 substituted or unsubstituted C1-6 alkoxy group, amino group (which may be substituted on the amino group by at least one group selected from a group consisting of a C1-6 alkyl group and phenyl group (which may be substituted on the phenyl ring by at least one group
25 selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group), phenoxy group (which may be substituted on the

phenyl ring by at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group) and piperidyl group

5 (which may be substituted on the piperidine ring by at least one phenoxy group as a substituent (which may be substituted by at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted

10 or unsubstituted C1-6 alkoxy group))) includes a phenyl group (which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted

15 or unsubstituted C1-6 alkoxy group, amino group (which may be substituted on the amino group by 1 to 2 groups selected from a group consisting of a C1-6 alkyl group and a phenyl group (which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups

20 selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group), phenoxy group (which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups

25 selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group) and piperidyl group (which may be substituted on

the piperidine ring by 1 to 3 phenoxy groups, as a substituent, (which may be substituted by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group))), for example, a phenyl group, 2-fluorophenyl group, 3-fluorophenyl group, 4-fluorophenyl group, 2-chlorophenyl group, 3-chlorophenyl group, 4-chlorophenyl group, 2-bromophenyl group, 3-bromophenyl group, 4-bromophenyl group, 2-iodophenyl group, 3-iodophenyl group, 4-iodophenyl group, 2,3-difluorophenyl group, 2,3,4,5,6-pentafluorophenyl group, 3,4-difluorophenyl group, 3,5-difluorophenyl group, 2,4-difluorophenyl group, 2,6-difluorophenyl group, 2,3-dichlorophenyl group, 3,4-dichlorophenyl group, 3,5-dichlorophenyl group, 2,4-dichlorophenyl group, 2,6-dichlorophenyl group, 3,4,5-trifluorophenyl group, 3,4,5-trichlorophenyl group, 2,4,6-trifluorophenyl group, 2,4,6-trichlorophenyl group, 2-methylphenyl group, 3-methylphenyl group, 4-methylphenyl group, 2,4-dimethylphenyl group, 2,4,6-trimethylphenyl group, 2-methyl-3-chlorophenyl group, 3-methyl-4-chlorophenyl group, 2-chloro-4-methylphenyl group, 2-methyl-3-fluorophenyl group, 2-trifluoromethylphenyl group, 3-trifluoromethylphenyl group, 3,5-di(trifluoromethyl)phenyl group, 4-trifluoromethylphenyl group, 2-pentafluoroethylphenyl group, 3-pentafluoroethylphenyl group, 4-pentafluoroethylphenyl

- group, 2-isopropylphenyl group, 3-isopropylphenyl group, 4-isopropylphenyl group, 2-tert-butylphenyl group, 3-tert-butylphenyl group, 4-tert-butylphenyl group, 2-sec-butylphenyl group, 3-sec-butylphenyl group, 4-sec-butylphenyl group, 2-n-heptafluoropropylphenyl group, 3-n-heptafluoropropylphenyl group, 4-n-heptafluoropropylphenyl group, 4-pentylphenyl group, 4-hexylphenyl group, 2-methoxyphenyl group, 3-methoxyphenyl group, 4-methoxyphenyl group, 2-methoxy-
 10 3-chlorophenyl group, 2-fluoro-3-methoxyphenyl group, 2-fluoro-4-methoxyphenyl group, 2,6-dimethoxyphenyl group, 2,4,6-trimethoxyphenyl group, 2-trifluoromethoxyphenyl group, 3-trifluoromethoxyphenyl group, 4-trifluoromethoxyphenyl group, 3,5-ditrifluoromethoxy-
 15 phenyl group, 4-trifluoromethoxyphenyl group, 2-pentafluoroethoxyphenyl group, 3-pentafluoroethoxyphenyl group, 4-pentafluoroethoxyphenyl group, 2-isopropoxyphenyl group, 3-isopropoxyphenyl group, 4-isopropoxyphenyl group, 2-tert-butoxyphenyl group, 3-tert-butoxyphenyl group, 4-tert-butoxyphenyl group, 2-sec-butoxyphenyl group, 3-sec-butoxyphenyl group, 4-sec-butoxyphenyl group, 2-n-heptafluoropropoxyphenyl group, 3-n-heptafluoropropoxyphenyl group, 4-n-heptafluoropropoxyphenyl group, 4-pentyloxyphenyl
 20 group, 4-hexyloxyphenyl group, 2-aminophenyl group, 3-aminophenyl group, 4-aminophenyl group, 3-methylaminophenyl group, 3-dimethylaminophenyl group, 4-methylaminophenyl group, 4-dimethylaminophenyl group,

- 4-ethylaminophenyl group, 4-diethylaminophenyl group,
 4-di-n-propylaminophenyl group, 4-n-propylaminophenyl
 group, 4-n-butylaminophenyl group, 4-di-n-butylamino-
 phenyl group, 4-n-pentylaminophenyl group, 4-di-n-
 5 pentylaminophenyl group, 4-n-hexylaminophenyl group, 4-
 di-n-hexylaminophenyl group, 4-phenylaminophenyl group,
 4-(2-fluorophenylamino)phenyl group, 4-(3-fluorophenyl-
 amino)phenyl group, 4-(4-fluorophenylamino)phenyl
 group, 4-(2,3,4,5,6-pentafluorophenylamino)phenyl
 10 group, 4-(2,4-difluorophenylamino)phenyl group, 4-(3,4-
 difluorophenylamino)phenyl group, 4-(3,5-
 difluorophenylamino)phenyl group, 4-(2-
 chlorophenylamino)phenyl group, 4-(3-
 chlorophenylamino)phenyl group, 4-(4-
 15 chlorophenylamino)phenyl group, 4-(2-bromophenyl-
 amino)phenyl group, 4-(3-bromophenylamino)phenyl group,
 4-(4-bromophenylamino)phenyl group, 4-(2,3-dichloro-
 phenylamino)phenyl group, 4-(2,4-dichlorophenylamino)-
 phenyl group, 4-(2,4,6-trichlorophenylamino)phenyl
 20 group, 4-(3,5-dichlorophenylamino)phenyl group, 4-(2-
 methylphenylamino)phenyl group, 4-(3-methylphenyl-
 amino)phenyl group, 4-(4-methylphenylamino)phenyl
 group, 4-(2-ethylphenylamino)phenyl group, 4-(3-
 ethylphenylamino)phenyl group, 4-(4-ethylphenylamino)-
 25 phenyl group, 4-(4-n-propylphenylamino)phenyl group, 4-
 (4-tert-butylphenylamino)phenyl group, 4-(4-n-
 butylphenylamino)phenyl group, 4-(2-trifluoromethyl-
 phenylamino)phenyl group, 4-(3-trifluoromethylphenyl-

- amino)phenyl group, 4-(4-trifluoromethylphenylamino)-phenyl group, 4-(2-pentafluoroethylphenylamino)phenyl group, 4-(3-pentafluoroethylphenylamino)phenyl group, 4-(2,3-dimethylphenylamino)phenyl group, 4-(3,4,5-
- 5 trimethylphenylamino)phenyl group, 4-(4-pentylphenylamino)phenyl group, 4-(4-hexylphenylamino)phenyl group, 4-(2-trifluoromethoxyphenylamino)phenyl group, 4-(3-trifluoromethoxyphenylamino)phenyl group, 4-(3-methoxyphenylamino)phenyl group, 4-(2,4-dimethoxy-
- 10 phenylamino)phenyl group, 4-(2,4,6-trimethoxyphenylamino)phenyl group, 4-(4-trifluoromethoxyphenylamino)phenyl group, 4-(2-pentafluoroethoxyphenylamino)-phenyl group, 4-(3-pentafluoroethoxyphenylamino)phenyl group, 4-(4-pentafluoroethoxyphenylamino)phenyl group,
- 15 3-(N-methyl-N-phenylamino)phenyl group, 2-phenoxyphenyl group, 3-phenoxyphenyl group, 4-phenoxyphenyl group, 2-(2-chlorophenoxy)phenyl group, 2,4-diphenoxyphenyl group, 2-(3-chlorophenoxy)phenyl group, 2-(4-chlorophenoxy)phenyl group, 3-(2-chlorophenoxy)phenyl group,
- 20 3-(3-chlorophenoxy)phenyl group, 3-(4-chlorophenoxy)-phenyl group, 4-(2-chlorophenoxy)phenyl group, 4-(2,3-dichlorophenoxy)phenyl group, 4-(2,4,6-trichlorophenoxy)phenyl group, 2-(2-trifluoromethylphenoxy)-phenyl group, 2-(3-trifluoromethylphenoxy)phenyl group,
- 25 2-(4-trifluoromethylphenoxy)phenyl group, 3-(2-trifluoromethylphenoxy)phenyl group, 3-(3-trifluoromethylphenoxy)phenyl group, 3-(2,3,4,5,6-pentafluoromethylphenoxy)phenyl group, 4-(2-trifluoromethyl-

- phenoxy)phenyl group, 4-(3-trifluoromethylphenoxy)-
phenyl group, 4-(2,4-dimethylphenoxy)phenyl group, 4-
(2,4,6-trimethylphenoxy)phenyl group, 4-(3-trifluoro-
methylphenoxy)phenyl group, 4-(4-trifluoromethyl-
5 phenoxy)phenyl group, 2-(2-trifluoromethoxyphenoxy)-
phenyl group, 2-(3-trifluoromethoxyphenoxy)phenyl
group, 2-(4-trifluoromethoxyphenoxy)phenyl group, 2-(4-
methoxyphenoxy)phenyl group, 2-(2,4-dimethoxyphenoxy)-
phenyl group, 2-(2,4,6-trimethoxyphenoxy)phenyl group,
10 3-(2-trifluoromethoxyphenoxy)phenyl group, 3-(3-
trifluoromethoxyphenoxy)phenyl group, 3-(4-trifluoro-
methoxyphenoxy)phenyl group, 4-(2-trifluoromethoxy-
phenoxy)phenyl group, 4-(3-trifluoromethoxyphenoxy)-
phenyl group, 4-(4-trifluoromethoxyphenoxy)phenyl
15 group, 2-(4-phenoxy-piperidin-1-yl)phenyl group, 3-(4-
phenoxy-piperidin-1-yl)phenyl group, 4-(4-phenoxy-
piperidin-1-yl)phenyl group, 2-[4-(4-chlorophenoxy)-
piperidin-1-yl]phenyl group, 4-[4-(4-chlorophenoxy)-
piperidin-1-yl]phenyl group, 3-[4-(2,4,6-trichloro-
20 phenoxy)piperidin-1-yl]phenyl group, 4-[4-(3,4-
dichlorophenoxy)piperidin-1-yl]phenyl group, 4-[4-
(2,3,4,5,6-pentafluorophenoxy)piperidin-1-yl]phenyl
group, 4-[4-(4-bromophenoxy)piperidin-1-yl]phenyl
group, 3-[4-(4-chlorophenoxy)piperidin-1-yl]phenyl
25 group, 2-[4-(4-methylphenoxy)piperidin-1-yl]phenyl
group, 2-[4-(3,4-dimethylphenoxy)piperidin-1-yl]phenyl
group, 2-[4-(3,4,5-trimethylphenoxy)piperidin-1-
yl]phenyl group, 3-[4-(4-trifluoromethylphenoxy)-

piperidin-1-yl]phenyl group, 4-[4-(4-trifluoromethyl-
 phenoxy)piperidin-1-yl]phenyl group, 3-[4-(4-
 pentafluoroethylphenoxy)piperidin-1-yl]phenyl group, 4-
 [4-(4-pentafluoroethylphenoxy)piperidin-1-yl]phenyl
 5 group, 2-[4-(4-trifluoromethoxyphenoxy)piperidin-1-
 yl]phenyl group, 3-[4-(4-
 trifluoromethoxyphenoxy)piperidin-1-yl]phenyl group, 4-
 [4-(4-methoxyphenoxy)piperidin-1-yl]phenyl group, 4-[4-
 (2,4-dimethoxyphenoxy)piperidin-1-yl]phenyl group, 4-
 10 [4-(2,4,6-trimethoxyphenoxy)piperidin-1-yl]phenyl
 group, 4-[4-(4-trifluoromethoxyphenoxy)piperidin-1-
 yl]phenyl group, 2-[4-(4-
 pentafluoroethoxyphenoxy)piperidin-1-yl]phenyl group,
 4-[4-(4-pentafluoroethoxyphenoxy)piperidin-1-yl]phenyl
 15 group, (3,4-diphenoxypiperidin-1-yl)phenyl group,
 piperidin-1-ylphenyl group, (3,4,5-triphenoxypiperidin-
 1-yl)phenyl group, piperidin-4-ylphenyl group or the
 like.

A piperazinyl C1-6 alkyl group (which may be
 20 substituted on the piperazine ring by at least one
 group selected from a group consisting of a C1-6
 alkoxycarbonyl group and phenyl C1-6 alkoxycarbonyl
 group which may be substituted on the phenyl ring by 1
 to 3 groups selected from a group consisting of a
 25 halogen atom, halogen-substituted or unsubstituted C1-6
 alkyl group or halogen-substituted or unsubstituted C1-
 6 alkoxy group and phenyl group) includes a piperazinyl
 C1-6 alkyl group (which may be substituted on the

piperazin ring by 1 to 3 groups selected from a group consisting of a C1-6 alkoxy carbonyl group and a phenyl C1-6 alkoxy carbonyl group which may be substituted on the phenyl ring by 1 to 3 groups selected from a group
5 consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group or halogen-substituted or unsubstituted C1-6 alkoxy group and phenyl group), for example, a 1-piperazinylmethyl group, 2-(2-piperazinyl)ethyl group, 1-(3-piperazinyl)ethyl group,
10 3-(4-piperazinyl)propyl group, 4-(1-piperazinyl)butyl group, 5-(2-piperazinyl)pentyl group, 6-(3-piperazinyl)hexyl group, 4-methoxycarbonyl-1-piperazinylmethyl group, 2-(4-methoxycarbonyl-1-piperazinyl)ethyl group, 3-(4-methoxycarbonyl-1-piperazinyl)propyl group, 4-(4-methoxycarbonyl-1-piperazinyl)butyl group, 5-(4-methoxycarbonyl-1-piperazinyl)pentyl group, 6-(4-methoxycarbonyl-1-piperazinyl)hexyl group, 4-ethoxycarbonyl-1-piperazinylmethyl group, 2-(4-ethoxycarbonyl-1-piperazinyl)ethyl group, 3-(4-ethoxycarbonyl-1-piperazinyl)propyl group, 4-(4-ethoxycarbonyl-1-piperazinyl)butyl group, 5-(4-ethoxycarbonyl-1-piperazinyl)pentyl group, 6-(4-ethoxycarbonyl-1-piperazinyl)hexyl group, 4-tert-butoxycarbonyl-1-piperazinylmethyl group, 2-(4-tert-butoxycarbonyl-1-piperazinyl)ethyl group, 3-(4-tert-butoxycarbonyl-1-piperazinyl)propyl group, 4-(4-tert-butoxycarbonyl-1-piperazinyl)butyl group, 5-(4-tert-butoxycarbonyl-1-

- piperazinyl)pentyl group, 6-(4-tert-butoxycarbonyl-1-piperazinyl)hexyl group, 2-(4-biphenylylmethoxycarbonyl-1-piperazinyl)ethyl group, 3-(4-biphenylylmethoxycarbonyl-1-piperazinyl)propyl group, 4-(4-
- 5 biphenylylmethoxycarbonyl-1-piperazinyl)butyl group, 5-(4-biphenylylmethoxycarbonyl-1-piperazinyl)pentyl group, 6-(4-biphenylylmethoxycarbonyl-1-piperazinyl)-hexyl group, 2-(4-benzyloxycarbonyl-1-piperazinyl)ethyl group, 3-(4-benzyloxycarbonyl-1-piperazinyl)propyl
- 10 group, 4-(4-benzyloxycarbonyl-1-piperazinyl)butyl group, 5-(4-benzyloxycarbonyl-1-piperazinyl)pentyl group, 6-(4-(4-benzyloxycarbonyl)-1-piperazinyl)hexyl group, 2-(4-(2-fluorobenzyloxycarbonyl)-1-piperazinyl)ethyl group, 3-(4-(2-fluorobenzyloxy-
- 15 carbonyl)-1-piperazinyl)propyl group, 4-(4-(2,3-difluorobenzyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(2-fluorobenzyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-(4-fluorobenzyloxycarbonyl)-1-piperazinyl)hexyl group, 3-(4-(3-
- 20 fluorobenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(3-fluorobenzyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(3-fluorobenzyloxycarbonyl)-1-piperazinyl)pentyl group, 3-(4-(4-fluorobenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(4-
- 25 fluorobenzyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(4-fluorobenzyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-(4-fluorobenzyloxycarbonyl)-1-piperazinyl)hexyl group, 2-(4-(2,3-dichlorobenzyloxy-

- carbonyl)-1-piperazinyl)ethyl group, 3-(4-(2-chlorobenzoyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(2-chlorobenzoyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(2,4,6-trichlorobenzoyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-(2-chlorobenzoyloxycarbonyl)-1-piperazinyl)hexyl group, 2-(4-(3-chlorobenzoyloxycarbonyl)-1-piperazinyl)ethyl group, 3-(4-(3-chlorobenzoyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(3-trichlorobenzoyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(3-chlorobenzoyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(3-chloro-4-methylbenzoyloxycarbonyl-1-piperazinyl)hexyl group, 2-(4-(4-chlorobenzoyloxycarbonyl)-1-piperazinyl)ethyl group, 3-(4-(4-chlorobenzoyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(4-chloro-3-methoxybenzoyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(4-chlorobenzoyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-chlorobenzoyloxycarbonyl-1-piperazinyl)hexyl group, 2-(4-(2-methylbenzoyloxycarbonyl)-1-piperazinyl)methyl group, 2-(4-(2,4-dimethylbenzoyloxycarbonyl)-1-piperazinyl)methyl group, 2-(4-(2,4,6-trimethylbenzoyloxycarbonyl)-1-piperazinyl)methyl group, 2-(4-(2-trifluoromethylbenzoyloxycarbonyl)-1-piperazinyl)ethyl group, 3-(4-(3,5-ditrifluoromethylbenzoyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(2-trifluoromethylbenzoyloxycarbonyl)-1-piperazinyl)butyl group, 5-(4-(2-trifluoromethylbenzoyloxycarbonyl)-1-piperazinyl)pentyl

- group, 6-(4-(2-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)hexyl group, 3-(4-(3-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(3-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)butyl
- 5 group, 5-(4-(3-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)pentyl group, 3-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)butyl
- 10 group, 5-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl)hexyl group, 2-(4-(3,5-ditrifluoromethylbenzyloxycarbonyl)-1-piperazinyl)ethyl group, 2-(4-(2-methoxybenzyloxycarbonyl)-1-piperazinyl)methyl group, 2-(4-(2,4-
- 15 dimethoxybenzyloxycarbonyl)-1-piperazinyl)methyl group, 2-(4-(2,4,6-trimethoxybenzyloxycarbonyl)-1-piperazinyl)methyl group, 3-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)butyl
- 20 group, 5-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)hexyl group, 3-(4-(3-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(3-trifluoromethoxybenzyloxycarbonyl)-1-
- 25 piperazinyl)butyl group, 5-(4-(3-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)pentyl group, 3-(4-(4-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)propyl group, 4-(4-(4-trifluoromethoxybenzyloxycarbonyl)-1-

piperazinyl)butyl group, 5-(4-(4-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)pentyl group, 6-(4-(4-trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)hexyl group, (3,4-diethoxycarbonyl-1-piperazinyl)methyl group, 4-phenylmethoxycarbonyl-2,5-dimethoxycarbonyl-1-piperazinyl)methyl group or the like.

A piperazinylcarbonyl C1-6 alkyl group (which may be substituted on the piperazine ring by at least one group selected from a group consisting of a C1-6 alkoxy carbonyl group, phenyl C1-6 alkoxy carbonyl group which may have a halogen-substituted or unsubstituted C1-6 alkyl group as a substituent on the phenyl ring and phenyl C1-6 alkyl group which may have at least one group selected from a group consisting of a halogen-substituted or unsubstituted C1-6 alkyl group and phenyl group as a substituent on the phenyl ring) includes a piperazinylcarbonyl C1-6 alkyl group (which may be substituted on the piperazine ring by 1 to 3 groups selected from a group consisting of a C1-6 alkoxy carbonyl group, phenyl C1-6 alkoxy carbonyl group which may have 1 to 3 groups halogen-substituted or unsubstituted C1-6 alkyl groups as a substituent on the phenyl ring and phenyl C1-6 alkyl group which may have 1 to 3 groups selected from a group consisting of a halogen-substituted or unsubstituted C1-6 alkyl group and phenyl group as a substituent on the phenyl ring), for example, a 1-piperazinylcarbonylmethyl group, 2-(2-piperazinylcarbonyl)ethyl group, 1-(3-piperazinyl-

- carbonyl)ethyl group, 3-(4-piperazinylcarbonyl)propyl group, 4-(1-piperazinylcarbonyl)butyl group, 5-(2-piperazinylcarbonyl)pentyl group, 6-(3-piperazinylcarbonyl)hexyl group, 4-tert-butoxycarbonyl-1-
- 5 piperazinylcarbonylmethyl group, 2-(4-tert-butoxycarbonyl-1-piperazinylcarbonyl)ethyl group, 3-(4-tert-butoxycarbonyl-1-piperazinylcarbonyl)propyl group, 4-(4-tert-butoxycarbonyl-1-piperazinylcarbonyl)butyl group, 5-(4-tert-butoxycarbonyl-1-piperazinyl-
- 10 carbonyl)pentyl group, 6-(4-tert-butoxycarbonyl-1-piperazinylcarbonyl)hexyl group, 4-ethoxycarbonyl-1-piperazinylcarbonylmethyl group, 2-(4-ethoxycarbonyl-1-piperazinylcarbonyl)ethyl group, 3-(4-n-propoxy-
- 15 carbonyl-1-piperazinylcarbonyl)propyl group, 4-(4-ethoxycarbonyl-1-piperazinylcarbonyl)butyl group, 5-(4-n-pentyloxycarbonyl-1-piperazinylcarbonyl)pentyl group, 6-(4-n-hexyloxycarbonyl-1-piperazinylcarbonyl)hexyl group, 4-(benzyloxycarbonyl)-1-piperazinylcarbonyl-
- 20 methyl group, 2-(4-benzyloxycarbonyl)-1-piperazinylcarbonyl)ethyl group, 3-(4-(benzyloxycarbonyl)-1-piperazinylcarbonyl)propyl group, 4-(4-(benzyloxycarbonyl)-1-piperazinylcarbonyl)butyl group, 5-(4-benzyloxycarbonyl)-1-piperazinylcarbonyl)pentyl group, 6-(4-(benzyloxycarbonyl)-1-
- 25 piperazinylcarbonyl)hexyl group, 4-(4-methylbenzyloxycarbonyl)-1-piperazinylcarbonyl)methyl group, 4-(2,4-dimethylbenzyloxycarbonyl)-1-piperazinylcarbonyl)methyl group, 4-(2,4,6-trimethyl-

- benzyloxycarbonyl)-1-piperazinylcarbonyl)methyl group,
 4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperazinyl-
 carbonylmethyl group, 2-(4-(3,5-ditrifluoromethyl-
 benzyloxycarbonyl)-1-piperazinylcarbonyl)ethyl group,
 5 3-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-
 piperazinylcarbonyl)propyl group, 4-(4-(4-trifluoro-
 methylbenzyloxycarbonyl)-1-piperazinylcarbonyl)butyl
 group, 5-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-
 piperazinylcarbonyl)pentyl group, 6-(4-(4-trifluoro-
 10 methylbenzyloxycarbonyl)-1-piperazinylcarbonyl)hexyl
 group, 4-(2-phenylethoxycarbonyl)-1-piperazinyl-
 carbonyl)methyl group, 2-(4-[2-(4-trifluoro-
 methylphenyl)ethoxycarbonyl]-1-piperazinylcarbonyl)-
 ethyl group, 3-(4-[2-(4-trifluoromethylphenyl)-
 15 ethoxycarbonyl]-1-piperazinylcarbonyl)propyl group, 4-
 {4-[2-(4-methylphenyl)ethoxycarbonyl]-1-
 piperazinylcarbonyl}butyl group, 5-{4-[2-(2,4,6-
 trimethylphenyl)ethoxycarbonyl]-1-
 piperazinylcarbonyl}pentyl group, 6-{4-[2-(4-
 20 trifluoromethylphenyl)ethoxycarbonyl]-1-
 piperazinylcarbonyl}hexyl group, 4-benzyl-1-
 piperazinylcarbonylmethyl group, 4-(4-trifluoro-
 methylbenzyl)-1-piperazinylcarbonylmethyl group, 2-(4-
 (4-trifluoromethylbenzyl)-1-piperazinylcarbonyl)ethyl
 25 group, 3-(4-(4-trifluoromethylbenzyl)-1-piperazinyl-
 carbonyl)propyl group, 4-(4-methylbenzyl)-1-
 piperazinylcarbonylmethyl group, 4-(2,4-dimethyl-
 benzyl)-1-piperazinylcarbonylmethyl group, 4-(2,4,6-

trimethylbenzyl)-1-piperazinylcarbonylmethyl group, 4-(4-(4-trifluoromethylbenzyl)-1-piperazinylcarbonyl)-butyl group, 5-(4-(3,5-ditrifluoromethylbenzyl)-1-piperazinylcarbonyl)pentyl group, 6-(4-(4-trifluoromethylbenzyl)-1-piperazinylcarbonyl)hexyl group, 4-(4-biphenylylmethyl)-1-piperazinylcarbonylmethyl group, 2-(4-(4-biphenylylmethyl)-1-piperazinylcarbonyl)ethyl group, 3-(4-(4-biphenylylmethyl)-1-piperazinylcarbonyl)propyl group, 4-(4-(4-biphenylylmethyl)-1-piperazinylcarbonyl)butyl group, 5-(4-(4-biphenylylmethyl)-1-piperazinylcarbonyl)pentyl group, 6-(4-(4-biphenylylmethyl)-1-piperazinylcarbonyl)hexyl group, 2,4-dibenzyl-1-piperazinylcarbonylmethyl group, 4-benzyloxycarbonyl-3-benzyl-1-piperazinylcarbonylmethyl group, 4-ethoxycarbonyl-2,6-dibenzyl-1-piperazinylcarbonylmethyl group or the like.

A phenylcarbamoyl C1-6 alkyl group which may have at least one halogen-substituted or unsubstituted C1-6 alkyl group as a substituent on the phenyl ring includes a phenylcarbamoyl C1-6 alkyl group which may have 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups as a substituent on the phenyl ring, for example, a 4-methylphenylcarbamoylemethyl group, 2,4-dimethylphenylcarbamoylemethyl group, 2,4,6-trimethylphenylcarbamoylemethyl group, 3-ethylphenylcarbamoylemethyl group, 2-n-propylphenylcarbamoylemethyl group, 4-n-butylphenylcarbamoylemethyl group, 4-n-pentylphenylcarbamoylemethyl group, 4-n-hexylphenylcarbamoylemethyl

group, 4-trifluoromethylphenylcarbamoylethyl group, 2-(4-trifluoromethylphenylcarbamoylethyl)ethyl group, 3-(3,5-ditrifluoromethylphenylcarbamoylethyl)propyl group, 4-(4-trifluoromethylphenylcarbamoylethyl)butyl group, 5-(4-trifluoromethylphenylcarbamoylethyl)pentyl group, 6-(4-trifluoromethylphenylcarbamoylethyl)hexyl group or the like.

Examples of a benzoxazolyl C1-6 alkyl group (which may have at least one oxo group as a substituent on the benzoxazole ring) include a benzoxazol-2-ylmethyl group, benzoxazol-4-ylmethyl group, benzoxazol-5-ylmethyl group, benzoxazol-6-ylmethyl group, benzoxazol-7-ylmethyl group, 2-(benzoxazol-2-yl)ethyl group, 1-(benzoxazol-4-yl)ethyl group, 3-(benzoxazol-5-yl)propyl group, 4-(benzoxazol-6-yl)butyl group, 5-(benzoxazol-7-yl)pentyl group, 6-(benzoxazol-2-yl)hexyl group, 2-methyl-3-(benzoxazol-4-yl)propyl group, 1,1-dimethyl-2-(benzoxazol-5-yl)ethyl group, (2,3-dihydro-2-oxo-benzoxazol-3-yl)methyl group, (2,3-dihydro-2-oxo-benzoxazol-4-yl)methyl group, (2,3-dihydro-2-oxo-benzoxazol-5-yl)methyl group, (2,3-dihydro-2-oxo-benzoxazol-6-yl)methyl group, (2,3-dihydro-2-oxo-benzoxazol-7-yl)methyl group or the like.

A phenylthiocarbamoyl group which may be substituted on the phenyl ring by at least one halogen atom as a substituent includes a phenylthiocarbamoyl group which may be substituted on the phenyl ring by 1 to 5 halogen atoms as a substituent, for example, a phenylthiocarbamoyl group, 4-fluorophenylthiocarbamoyl

group, 4-chlorophenylthiocarbamoyl group, 4-bromophenylthiocarbamoyl group, 3,4-dichlorophenylthiocarbamoyl group, 3,4,6-trichlorophenylthiocarbamoyl group, 2,3,4,5,6-pentafluorophenylthiocarbamoyl group
 5 or the like.

Examples of a C1-8 alkoxy carbonyl group include a methoxy carbonyl group, ethoxy carbonyl group, n-propoxy carbonyl group, n-pentyloxy carbonyl group, n-hexyloxy carbonyl group, n-heptyloxy carbonyl group, n-octyloxy carbonyl group or the like.
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A phenyl C1-6 alkoxy carbonyl group (which may be substituted on the phenyl ring by at least one group selected from a group consisting of a halogen atom, C1-6 alkoxy carbonyl group, amino group which may have a C1-6 alkoxy carbonyl group as a substituent, halogen-substituted or unsubstituted C1-6 alkyl group, halogen-substituted or unsubstituted C1-6 alkoxy group, nitro group and C1-6 alkylthio group) includes a phenyl C1-6 alkoxy carbonyl group (which may be substituted on the phenyl ring by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, C1-6 alkoxy carbonyl group, amino group which may have a C1-6 alkoxy carbonyl group as a substituent, halogen-substituted or unsubstituted C1-6 alkyl group, halogen-substituted or unsubstituted C1-6 alkoxy group, nitro group and C1-6 alkylthio group), for example, a benzyloxy carbonyl group, 1-phenethyloxy carbonyl group, 2-phenethyloxy carbonyl group, 3-phenyl-

- propoxycarbonyl group, 2-phenylpropoxycarbonyl group,
 4-phenylbutoxycarbonyl group, 5-phenylpentyloxycarbonyl
 group, 4-phenylpentyloxycarbonyl group, 6-phenyl-
 hexyloxycarbonyl group, 2-fluorobenzyloxycarbonyl
 5 group, 3-fluorobenzyloxycarbonyl group, 4-fluoro-
 benzyloxycarbonyl group, 2-chlorobenzyloxycarbonyl
 group, 3-chlorobenzyloxycarbonyl group, 4-chloro-
 benzyloxycarbonyl group, 2-bromobenzyloxycarbonyl
 group, 3-bromobenzyloxycarbonyl group, 4-bromo-
 10 benzyloxycarbonyl group, 2-iodobenzyloxycarbonyl group,
 3-iodobenzyloxycarbonyl group, 4-iodobenzyloxycarbonyl
 group, 2,3-difluorobenzyloxycarbonyl group, 3,4-
 difluorobenzyloxycarbonyl group, 3,5-difluorobenzyloxy-
 carbonyl group, 2,4-difluorobenzyloxycarbonyl group,
 15 2,6-difluorobenzyloxycarbonyl group, 2,4,6-trifluoro-
 benzyloxycarbonyl group, 2,3,4,5,6-pentafluoro-
 benzyloxycarbonyl group, 3,4,5-trifluorobenzyloxy-
 carbonyl group, 2,3-dichlorobenzyloxycarbonyl group,
 3,4-dichlorobenzyloxycarbonyl group, 3,5-dichloro-
 20 benzyloxycarbonyl group, 2,4-dichlorobenzyloxycarbonyl
 group, 2,6-dichlorobenzyloxycarbonyl group, 2,4,6-
 trichlorobenzyloxycarbonyl group, 3,4,5-trichloro-
 benzyloxycarbonyl group, 2-trifluoromethylbenzyloxy-
 carbonyl group, 3-methylbenzyloxycarbonyl group, 2,4-
 25 dimethylbenzyloxycarbonyl group, 2,4,6-trimethyl-
 benzyloxycarbonyl group, 3-difluoromethylbenzyloxy-
 carbonyl group, 4-difluoromethylbenzyloxycarbonyl
 group, 4-chloro-3-difluoromethylbenzyloxycarbonyl

- group, 3-chloro-4-difluoromethylbenzyloxycarbonyl
 group, 3-bromo-4-difluoromethylbenzyloxycarbonyl group,
 3,5-difluoro-4-difluoromethylbenzyloxycarbonyl group,
 3,5-ditrifluoromethylbenzyloxycarbonyl group, 3-
- 5 trifluoromethylbenzyloxycarbonyl group, 4-
 trifluoromethylbenzyloxycarbonyl group, 4-fluoro-3-
 trifluoromethylbenzyloxycarbonyl group, 3-fluoro-4-
 trifluoromethylbenzyloxycarbonyl group, 2-
 pentafluoroethylbenzyloxycarbonyl group, 4-chloro-3-
- 10 pentafluoroethylbenzyloxycarbonyl group, 3-chloro-4-
 pentafluoroethylbenzyloxycarbonyl group, 2-
 pentafluoroethylbenzyloxycarbonyl group, 3-
 pentafluoroethylbenzyloxycarbonyl group, 4-
 pentafluoroethylbenzyloxycarbonyl group, 3-
- 15 methoxybenzyloxycarbonyl group, 2,4-dimethoxy-
 benzyloxycarbonyl group, 2,4,6-trimethoxybenzyloxy-
 carbonyl group, 2-trifluoromethoxybenzyloxycarbonyl
 group, 3-trifluoromethoxybenzyloxycarbonyl group, 4-
 trifluoromethoxybenzyloxycarbonyl group, 4-fluoro-3-
- 20 trifluoromethoxybenzyloxycarbonyl group, 3-fluoro-4-
 trifluoromethoxybenzyloxycarbonyl group, 2-
 pentafluoroethoxybenzyloxycarbonyl group, 3-
 pentafluoroethoxybenzyloxycarbonyl group, 4-
 pentafluoroethoxybenzyloxycarbonyl group, 3-chloro-4-
- 25 trifluoromethoxybenzyloxycarbonyl group, 3-chloro-4-
 pentafluoroethoxybenzyloxycarbonyl group, 2-(2-
 trifluoromethylphenyl)ethoxycarbonyl group, 2-(3-
 trifluoromethylphenyl)ethoxycarbonyl group, 2-(4-

- trifluoromethylphenyl)ethoxycarbonyl group, 2-(4-trifluoromethoxyphenyl)ethoxycarbonyl group, 2-(2-pentafluoroethoxyphenyl)ethoxycarbonyl group, 2-(3-pentafluoroethoxyphenyl)ethoxycarbonyl group, 2-(4-
- 5 pentafluoroethoxyphenyl)ethoxycarbonyl group, 3-(2-trifluoromethylphenyl)propoxycarbonyl group, 3-(3-trifluoromethylphenyl)propoxycarbonyl group, 3-(4-trifluoromethylphenyl)propoxycarbonyl group, 3-(2-trifluoromethylphenyl)propoxycarbonyl group, 3-(3-
- 10 trifluoromethoxyphenyl)propoxycarbonyl group, 3-(4-trifluoromethoxyphenyl)propoxycarbonyl group, 3-(3-pentafluoroethoxyphenyl)propoxycarbonyl group, 3-(4-pentafluoroethoxyphenyl)propoxycarbonyl group, 4-(3-pentafluoroethoxyphenyl)butoxycarbonyl group, 5-(4-
- 15 trifluoromethylphenyl)pentylloxycarbonyl group, 4-(4-trifluoromethylphenyl)pentylloxycarbonyl group, 4-(4-trifluoromethoxyphenyl)pentylloxycarbonyl group, 6-(3-trifluoromethylphenyl)hexylloxycarbonyl group, 6-(4-trifluoromethylphenyl)hexylloxycarbonyl group, 6-(4-
- 20 trifluoromethoxyphenyl)hexylloxycarbonyl group, 2-methylthiobenzylloxycarbonyl group, 3-methylthiobenzylloxycarbonyl group, 4-methylthiobenzylloxycarbonyl group, 2-(2-methylthiophenyl)ethoxycarbonyl group, 2-(3-methylthiophenyl)ethoxycarbonyl group, 2-(4-
- 25 methylthiophenyl)ethoxycarbonyl group, 3-(4-methylthiophenyl)propoxycarbonyl group, 4-(4-methylthiophenyl)butoxycarbonyl group, 5-(4-methylthiophenyl)pentylloxycarbonyl group, 6-(4-

- methylthiophenyl)hexyloxycarbonyl group, 2-
 methoxycarbonylbenzyloxycarbonyl group, 3-
 methoxycarbonylbenzyloxycarbonyl group, 4-
 methoxycarbonylbenzyloxycarbonyl group, 2-(2-
 5 methoxycarbonylphenyl)ethoxycarbonyl group, 2-(3-
 methoxycarbonylphenyl)ethoxycarbonyl group, 2-(4-
 methoxycarbonylphenyl)ethoxycarbonyl group, 3-(4-
 methoxycarbonylphenyl)propoxycarbonyl group, 4-(4-
 methoxycarbonylphenyl)butoxycarbonyl group, 5-(4-
 10 methoxycarbonylphenyl)pentyloxycarbonyl group, 6-(4-
 methoxycarbonylphenyl)hexyloxycarbonyl group, 4-n-
 pentyloxycarbonylaminobenzyloxycarbonyl group, 4-
 ethoxycarbonylaminobenzyloxycarbonyl group, 4-
 propoxycarbonylaminobenzyloxycarbonyl group, 4-tert-
 15 butoxycarbonylaminobenzyloxycarbonyl group, 2-(n-
 hexyloxycarbonylaminophenyl)ethoxycarbonyl group, 3-(4-
 tert-butoxycarbonylaminophenyl)propoxycarbonyl group,
 4-(4-tert-butoxycarbonylaminophenyl)butoxycarbonyl
 group, 5-(4-tert-butoxycarbonylaminophenyl)pentyloxy-
 20 carbonyl group, 6-(4-tert-butoxycarbonylaminophenyl)-
 hexyloxycarbonyl group, 2-nitrobenzyloxycarbonyl group,
 3-nitrobenzyloxycarbonyl group, 4-nitrobenzyloxy-
 carbonyl group, 2-(2-nitrophenyl)ethoxycarbonyl group,
 2-(3-nitrophenyl)ethoxycarbonyl group, 2-(4-nitro-
 25 phenyl)ethoxycarbonyl group, 3-(2,4-dinitrophenyl)-
 propoxycarbonyl group, 4-(4-nitrophenyl)butoxycarbonyl
 group, 5-(4-nitrophenyl)pentyloxycarbonyl group, 6-
 (2,4,6-trinitrophenyl)hexyloxycarbonyl group, 2-

aminobenzyloxycarbonyl group, 3-aminobenzyloxycarbonyl group, 4-aminobenzyloxycarbonyl group, 2-(2-amino-phenyl)ethoxycarbonyl group, 2-(2,3-diaminophenyl)-ethoxycarbonyl group, 2-(4-aminophenyl)ethoxycarbonyl group, 3-(2,4,6-triaminophenyl)propoxycarbonyl group, 4-(4-aminophenyl)butoxycarbonyl group, 5-(4-amino-phenyl)pentylloxycarbonyl group, 6-(4-aminophenyl)-hexylloxycarbonyl group, 2-ethoxycarbonylbenzyloxy-carbonyl group, 3-ethoxycarbonylbenzyloxycarbonyl group, 4-methoxycarbonylbenzyloxycarbonyl group, 2-(2-ethoxycarbonylphenyl)ethoxycarbonyl group, 2-(3-ethoxycarbonylphenyl)ethoxycarbonyl group, 2-(4-ethoxycarbonylphenyl)ethoxycarbonyl group, 3-(4-n-butoxycarbonylphenyl)propoxycarbonyl group, 4-(4-n-pentylloxycarbonylphenyl)butoxycarbonyl group, 5-(4-n-hexylloxycarbonylphenyl)pentylloxycarbonyl group, 6-(4-n-ethoxycarbonylphenyl)hexylloxycarbonyl group or the like.

A benzhydryloxycarbonyl group (which may be substituted on the phenyl ring by at least one halogen atom) includes a benzhydryloxycarbonyl group (which may be substituted on the phenyl ring by 1 to 4 halogen atoms), for example, a benzhydryloxycarbonyl group, 3-fluorobenzhydryloxycarbonyl group, 4-fluorobenzhydryloxycarbonyl group, 3,3'-difluorobenzhydryloxycarbonyl group, 3,4'-difluorobenzhydryloxy-carbonyl group, 4,4'-difluorobenzhydryloxycarbonyl group, 3,4,4'-trifluorobenzhydryloxycarbonyl group,

- 3,3',4,4'-tetrafluorobenzhydryloxycarbonyl group,
 2,2',4,4'-tetrafluorobenzhydryloxycarbonyl group,
 3,3',5,5'-tetrafluorobenzhydryloxycarbonyl group, 3-
 chlorobenzhydryloxycarbonyl group, 4-chlorobenz-
 5 hydryloxycarbonyl group, 3,3'-dichlorobenzhydryloxy-
 carbonyl group, 3,4'-dichlorobenzhydryloxycarbonyl
 group, 4,4'-dichlorobenzhydryloxycarbonyl group,
 3,4,4'-trichlorobenzhydryloxycarbonyl group, 3,3',4,4'-
 tetrachlorobenzhydryloxycarbonyl group, 2,2',4,4'-
 10 tetrachlorobenzhydryloxycarbonyl group, 3,3',5,5'-
 tetrachlorobenzhydryloxycarbonyl group or the like.

- Examples of a phenyl-substituted or
 unsubstituted phenyl C1-6 alkoxy carbonyl group include
 a benzyloxycarbonyl group, 1-phenylethoxycarbonyl
 15 group, 2-phenylethoxycarbonyl group, 3-phenylethoxy-
 carbonyl group, 2-phenylpropoxycarbonyl group, 4-
 phenylbutoxycarbonyl group, 5-phenylpentoxycarbonyl
 group, 4-phenylpentoxycarbonyl group, 6-phenylhexyloxy-
 carbonyl group, 2-biphenylylmethoxycarbonyl group, 2-
 20 (2-biphenylyl)ethoxycarbonyl group, 3-(2-biphenylyl)-
 propoxycarbonyl group, 4-(2-biphenylyl)butoxycarbonyl
 group, 5-(2-biphenylyl)pentoxycarbonyl group, 6-(2-
 biphenylyl)hexyloxycarbonyl group, 3-biphenylylmethoxy-
 carbonyl group, 2-(3-biphenylyl)ethoxycarbonyl group,
 25 3-(3-biphenylyl)propoxycarbonyl group, 4-(3-
 biphenylyl)butoxycarbonyl group, 5-(3-biphenylyl)-
 pentoxycarbonyl group, 6-(3-biphenylyl)hexyloxycarbonyl
 group, 4-biphenylylmethoxycarbonyl group, 2-(4-

biphenylyl)ethoxycarbonyl group, 3-(4-biphenylyl)-propoxycarbonyl group, 4-(4-biphenylyl)butoxycarbonyl group, 5-(4-biphenylyl)pentoxycarbonyl group, 6-(4-biphenylyl)hexyloxycarbonyl group or the like.

- 5 Examples of a pyridyl C1-6 alkoxy carbonyl group include a 2-pyridylmethoxycarbonyl group, 3-pyridylmethoxycarbonyl group, 4-pyridylmethoxycarbonyl group, 2-(2-pyridyl)ethoxycarbonyl group, 2-(3-pyridyl)ethoxycarbonyl group, 2-(4-pyridyl)ethoxy-
- 10 carbonyl group, 3-(2-pyridyl)propoxycarbonyl group, 3-(3-pyridyl)propoxycarbonyl group, 3-(4-pyridyl)propoxycarbonyl group, 4-(2-pyridyl)butoxycarbonyl group, 4-(3-pyridyl)butoxycarbonyl group, 4-(4-pyridyl)butoxycarbonyl group, 5-(2-pyridyl)pentyloxycarbonyl group,
- 15 5-(3-pyridyl)pentyloxycarbonyl group, 5-(4-pyridyl)-pentyloxycarbonyl group, 6-(2-pyridyl)hexyloxycarbonyl group, 6-(3-pyridyl)hexyloxycarbonyl group, 6-(4-pyridyl)hexyloxycarbonyl group or the like.

- Examples of a C1-6 alkoxy-substituted C1-6
- 20 alkoxy carbonyl group include a methoxymethoxycarbonyl group, methoxyethoxycarbonyl group, 1-ethoxyethoxycarbonyl group, n-propoxymethoxycarbonyl group, n-butoxymethoxycarbonyl group, n-pentyloxymethoxycarbonyl group, n-hexyloxymethoxycarbonyl group, 1-methoxy-
- 25 ethoxycarbonyl group, 2-ethoxyethoxycarbonyl group, 2-n-propoxyethoxycarbonyl group, n-butoxymethoxycarbonyl group, n-pentyloxymethoxycarbonyl group, n-hexyloxy-methoxycarbonyl group, 3-methoxypropoxycarbonyl group,

4-methoxybutoxycarbonyl group, 5-methoxypentyloxy-carbonyl group, 6-methoxyhexyloxycarbonyl group or the like.

- A piperaziny1 C1-6 alkoxy carbonyl group
- 5 (which may be substituted on the piperazin ring by at least one group selected from a group consisting of a C1-6 alkoxy carbonyl group and phenyl C1-6 alkoxy-carbonyl group which may have as a substituent at least one halogen atom on the phenyl ring, as a
- 10 substituent) includes a piperaziny1 C1-6 alkoxy carbonyl group (which may be substituted on the piperazin ring by 1 to 3 groups selected from a group consisting of a C1-6 alkoxy carbonyl group and phenyl C1-6 alkoxy carbonyl group which may have as a
- 15 substituent 1 to 5 halogen atom on the phenyl ring, as a substituent), for example, a (1-piperaziny1)methoxy-carbonyl group, 2-(2-piperaziny1)ethoxycarbonyl group, 1-(3-piperaziny1)ethoxycarbonyl group, 3-(4-piperaziny1)propoxycarbonyl group, 4-(1-piperaziny1)-
- 20 butoxycarbonyl group, 5-(2-piperaziny1)pentyl oxy-carbonyl group, 6-(3-piperaziny1)hexyloxycarbonyl group, 2-methyl-3-(1-piperaziny1)propoxycarbonyl group, 1,1-dimethyl-2-(4-piperaziny1)ethoxycarbonyl group, 2-(1-piperaziny1)ethoxycarbonyl group, 2-(4-methoxy-
- 25 carbonyl-1-piperaziny1)ethoxycarbonyl group, 2-(4-ethoxycarbonyl-1-piperaziny1)ethoxycarbonyl group, 2-(4-n-propoxycarbonyl-1-piperaziny1)ethoxycarbonyl group, 2-(4-tert-butopoxycarbonyl-1-piperaziny1)-

- ethoxycarbonyl group, 2-(4-sec-butoxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-n-pentyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-n-hexyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-
- 5 (4-benzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-phenylethoxycarbonyl-1-piperazinyl)-ethoxycarbonyl group, 2-(4-(3-phenylpropoxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(2-fluorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group,
- 10 2-(4-(4-fluorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(4-chlorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(3-chlorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(2-bromobenzyloxycarbonyl-1-piperazinyl)-ethoxycarbonyl group, 2-(4-(2-chlorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(3,4-
- 15 difluorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(2,3,4,5,6-pentafluorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(2,4-
- 20 dichlorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, 2-(4-(2,4,6-trichlorobenzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group, (3,4-methoxycarbonyl-1-piperazinyl)ethoxycarbonyl group, (2,5-methoxycarbonyl-4-benzyloxycarbonyl-1-piperazinyl)ethoxycarbonyl group or the like.
- 25

A phenoxy carbonyl group (which may be substituted on the phenyl ring by at least one group selected from a group consisting of a C1-6 alkyl group

and C1-6 alkoxy group) includes a phenoxycarbonyl group (which may be substituted on the phenyl ring by 1 to 3 groups selected from a group consisting of a C1-6 alkyl group and a C1-6 alkoxy group), for example, a

5 phenoxycarbonyl group, 2-methylphenoxycarbonyl group, 3-methylphenoxycarbonyl group, 4-methylphenoxycarbonyl group, 2-ethylphenoxycarbonyl group, 3-ethylphenoxy-carbonyl group, 4-ethylphenoxycarbonyl group, 4-propylphenoxycarbonyl group, 4-tert-butylphenoxy-

10 carbonyl group, 4-butylphenoxycarbonyl group, 2,3-dimethylphenoxycarbonyl group, 3,4,5-trimethylphenoxy-carbonyl group, 4-pentylphenoxycarbonyl group, 4-hexylphenoxycarbonyl group, 2-methoxyphenoxycarbonyl group, 3-methoxyphenoxycarbonyl group, 4-methoxy-

15 phenoxycarbonyl group, 2-ethoxyphenoxycarbonyl group, 3-ethoxyphenoxycarbonyl group, 4-ethoxyphenoxycarbonyl group, 4-propoxyphenoxycarbonyl group, 4-tert-butoxyphenoxycarbonyl group, 4-n-butoxyphenoxycarbonyl group, 2,3-dimethoxyphenoxycarbonyl group, 3,4,5-

20 trimethoxyphenoxycarbonyl group, 4-pentoxypheoxy-carbonyl group, 4-hexyloxyphenoxycarbonyl group, 2-methyl-4-methoxyphenoxycarbonyl group or the like.

A benzoyl group (which may be substituted on the phenyl ring by at least one halogen-substituted or

25 unsubstituted C1-6 alkyl group) includes a benzoyl group (which may be substituted on the phenyl ring by 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups), for example, a benzoyl group, 2-methylbenzoyl

group, 3-methylbenzoyl group, 4-methylbenzoyl group, 2-ethylbenzoyl group, 3-ethylbenzoyl group, 4-ethylbenzoyl group, 4-n-propylbenzoyl group, 4-tert-butylbenzoyl group, 4-n-pentylbenzoyl group, 4-n-
 5 hexylbenzoyl group, 2,3-dimethylbenzoyl group, 3,4-dimethylbenzoyl group, 2,4,6-trimethylbenzoyl group, 2-trifluoromethylbenzoyl group, 3-trifluoromethylbenzoyl group, 4-trifluoromethylbenzoyl group, 4-pentafluoroethylbenzoyl group, 2,3-difluoromethylbenzoyl group,
 10 3,4-trifluoromethylbenzoyl group or the like.

A phenyl C2-6 alkanoyl group (which may be substituted on the phenyl ring by at least one halogen-substituted or unsubstituted C1-6 alkyl group) includes a phenyl C2-6 alkanoyl group (which may be substituted
 15 on the phenyl ring by 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups), for example, a phenylacetyl group, 3-phenylpropionyl group, 4-phenylbutyryl group, 5-phenylpentanoyl group, 6-phenylhexanoyl group, 2-methylphenylacetyl group, 3-
 20 methylphenylacetyl group, 4-methylphenylacetyl group, 2-trifluoromethylphenylacetyl group, 3-trifluoromethylphenylacetyl group, 4-trifluoromethylphenylacetyl group, 3-(2,4-dimethylphenyl)propionyl group, (2,4,6-trimethylphenyl)acetyl group, 3-(2-
 25 methylphenyl)propionyl group, 3-(3-methylphenyl)propionyl group, 3-(4-methylphenyl)propionyl group, 3-(2-trifluoromethylphenyl)propionyl group, 3-(3-trifluoromethylphenyl)-

propionyl group, 3-(4-trifluoromethylphenyl)propionyl group, 3-(3,5-dimethylphenyl)propionyl group, 4-(4-trifluoromethylphenyl)butyryl group, 5-(4-trifluoromethylphenyl)pentanoyl group, 6-(3,5-ditrifluoromethylphenyl)hexanoyl group, 4-(4-trifluoromethylphenyl)-butyryl group, 5-(4-pentafluoroethylphenyl)pentanoyl group, 6-(4-pentafluoroethylphenyl)hexanoyl group or the like.

Examples of a phenoxy C2-6 alkanoyl group (which may be substituted on the phenyl ring by 1 to 3 halogen atoms) include a phenoxyacetyl group, 3-phenoxypropionyl group, 4-phenoxypropionyl group, 5-phenoxypropionyl group, 6-phenoxypropionyl group, 4-(4-chlorophenoxy)butyryl group, 5-(4-chlorophenoxy)-pentanoyl group, 6-(4-chlorophenoxy)hexanoyl group, 2-fluorophenoxyacetyl group, 3-fluorophenoxyacetyl group, 4-fluorophenoxyacetyl group, 2-chlorophenoxyacetyl group, 3-chlorophenoxyacetyl group, 4-chlorophenoxyacetyl group, 4-bromophenoxyacetyl group, 2,3-difluorophenoxyacetyl group, 2-fluoro-4-chlorophenoxyacetyl group, 3,5-difluorophenoxyacetyl group, 2,4,6-trichlorophenoxyacetyl group, 3-(2-fluorophenoxy)-propionyl group, 3-(3-fluorophenoxy)propionyl group, 3-(4-fluorophenoxy)propionyl group, 3-(2-chlorophenoxy)-propionyl group, 3-(3-chlorophenoxy)propionyl group, 3-(4-chlorophenoxy)propionyl group, 3-(4-bromophenoxy)-propionyl group, 3-(2,3-difluorophenoxy)propionyl group, 3-(2-fluoro-4-chlorophenoxy)propionyl group, 3-

(3,5-difluorophenoxy)propionyl group, 4-(4-fluorophenoxy)butyryl group, 5-(4-bromophenoxy)pentanoyl group, 6-(4-chlorophenoxy)hexanoyl group, 4-(4-chlorophenoxy)butyryl group, 5-(4-iodophenoxy)pentanoyl group, 6-(4-chlorophenoxy)hexanoyl group or the like.

A piperaziny C2-6 alkanoyl group (which may be substituted on the piperazin ring by at least one group selected from a group consisting of a C1-6 alkanoyl group; phenyl C1-6 alkyl group which may have on the phenyl ring at least one group, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group; phenyl C1-6 alkoxycarbonyl group which may have on the phenyl ring at least one group, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and a halogen-substituted or unsubstituted C1-6 alkoxy group; phenylcarbamoyl C1-6 alkyl group which may have on the phenyl ring at least one group, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group; phenylcarbamoyl which may have on the phenyl ring at least one group, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or

unsubstituted C1-6 alkoxy group; and benzoxazolyl group) includes a piperaziny C2-6 alkanoyl group (which may be substituted on the piperazin ring by 1 to 3 groups selected from a group consisting of a C1-6 alkanoyl group; phenyl C1-6 alkyl group which may have on the phenyl ring 1 to 5, preferably 1 to 3 groups, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group; phenyl C1-6 alkoxycarbonyl group which may have on the phenyl ring 1 to 5, preferably 1 to 3 groups, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group; phenylcarbamoyl C1-6 alkyl group which may have on the phenyl ring 1 to 5, preferably 1 to 3 groups, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group; phenylcarbamoyl which may have on the phenyl ring 1 to 5, preferably 1 to 3 groups, as a substituent, selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and a halogen-substituted or unsubstituted C1-6 alkoxy group; and benzoxazolyl group), for example, a 1-piperaziny lacetyl group, 3-(2-piperaziny)propanoyl group, 4-(3-piperaziny)butyryl group, 4-(4-

- piperaziny]pentanoyl group, 5-(1-piperaziny]pentanoyl group, 6-(2-piperaziny]hexanoyl group, 4-acetyl-1-piperaziny]acetyl group, 3-(4-propionyl-1-piperaziny]propionyl group, 3-(4-butyryl-1-
- 5 piperaziny]butyryl group, 4-(4-pentanoyl-1-piperaziny]butyryl group, 5-(4-hexanoyl-1-piperaziny]pentanoyl group, 6-(4-acetyl-1-piperaziny]hexanoyl group, 4-benzyl-1-piperaziny]acetyl group, 3-[(4-(2-phenylethyl)-1-
- 10 piperaziny]propionyl group, (4-acetyl-3-benzyl-1-piperaziny]acetyl group, (4-benzyloxycarbonyl-2-benzyl-1-piperaziny]acetyl group, (4-phenylcarbamoyl-2,6-dibenzyl-1-piperaziny]acetyl group, 4-[4-(1-phenylethyl)-1-piperaziny]butyryl group, [4-(3-
- 15 phenylpropyl)-1-piperaziny]butyryl group, 5-[4-(5-phenylpentyl)-1-piperaziny]pentanoyl group, 6-[4-(6-phenylhexyl)-1-piperaziny]hexanoyl group, 4-(4-phenylbenzyl)-1-piperaziny]acetyl group, 3-[4-(3-fluorobenzyl)-1-piperaziny]propionyl group, 4-[4-
- 20 (2,3,4,5,6-pentafluorobenzyl)-1-piperaziny]butyryl group, 4-[4-(2,4-dichlorobenzyl)-1-piperaziny]butyryl group, 5-[4-(2,4,6-trichlorobenzyl)-1-piperaziny]-pentanoyl group, 6-[4-(4-methylbenzyl)-1-piperaziny]-hexanoyl group, [4-(4-trifluoromethylbenzyl)-1-
- 25 piperaziny]acetyl group, [4-(3,5-ditrifluoromethylbenzyl)-1-piperaziny]acetyl group, [4-(2,3-dimethylbenzyl)-1-piperaziny]acetyl group, [4-(2,4,6-trimethylbenzyl)-1-piperaziny]acetyl group, 6-[4-(4-

- methoxybenzyl)-1-piperazinyl]hexanoyl group, [4-(4-trifluoromethoxybenzyl)-1-piperazinyl]acetyl group, [4-(3,5-ditrifluoromethoxybenzyl)-1-piperazinyl]acetyl group, [4-(2,3-dimethoxybenzyl)-1-piperazinyl]acetyl
- 5 group, [4-(2,4,6-trimethoxybenzyl)-1-piperazinyl]acetyl group, 3-(4-benzyloxycarbonyl-1-piperazinyl)propionyl group, 4-(2,4-dichlorobenzyloxycarbonyl-1-piperazinyl)-acetyl group, 3-(4-benzyloxycarbonyl-1-piperazinyl)-butyryl group, 4-(4-benzyloxycarbonyl-1-piperazinyl)-
- 10 butyryl group, 5-(4-benzyloxycarbonyl-1-piperazinyl)-pentanoyl group, 6-(4-benzyloxycarbonyl-1-piperazinyl)-hexanoyl group, 3-(4-(2-fluorobenzyloxycarbonyl)-1-piperazinyl)propionyl group, 3-(4-(2-fluorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 4-(4-(2-
- 15 fluorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 5-(4-(2,3,4,5,6-pentafluorobenzyloxycarbonyl)-1-piperazinyl)pentanoyl group, 6-(4-fluorobenzyloxycarbonyl)-1-piperazinyl)hexanoyl group, 3-(4-(2,3-difluorobenzyloxycarbonyl-1-piperazinyl)butyryl group,
- 20 4-(4-(3-fluorobenzyloxycarbonyl-1-piperazinyl)butyryl group, 5-(4-(3-fluorobenzyloxycarbonyl-1-piperazinyl)-pentanoyl group, 3-(4-(4-fluorobenzyloxycarbonyl-1-piperazinyl)butyryl group, 4-(4-(4-fluorobenzyloxycarbonyl-1-piperazinyl)butyryl group, 5-(4-(4-
- 25 fluorobenzyloxycarbonyl)-1-piperazinyl)pentanoyl group, 6-(4-(4-fluorobenzyloxycarbonyl)-1-piperazinyl)hexanoyl group, 3-(4-(2-chlorobenzyloxycarbonyl)-1-piperazinyl)-propionyl group, 3-(4-(2-chlorobenzyloxycarbonyl)-1-

piperazinyl)butyryl group, 4-(4-(2-chlorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 5-(4-(2-chlorobenzyloxycarbonyl)-1-piperazinyl)pentanoyl group, 6-(2,4,6-trichlorobenzyloxycarbonyl)-1-piperazinyl)hexanoyl group, 3-(4-(3-chlorobenzyloxycarbonyl)-1-piperazinyl)-propionyl group, 3-(4-(3-chlorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 4-(4-(3-chlorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 5-(4-(3-chlorobenzyloxycarbonyl)-1-piperazinyl)pentanoyl group, 6-(3-chlorobenzyloxycarbonyl-1-piperazinyl)hexanoyl group, 2-(4-(4-chlorobenzyloxycarbonyl)-1-piperazinyl)-propionyl group, 3-(4-(4-chlorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 4-(4-(4-chlorobenzyloxycarbonyl)-1-piperazinyl)butyryl group, 5-(4-(4-chlorobenzyloxycarbonyl)-1-piperazinyl)pentanoyl group, 6-(4-chlorobenzyloxycarbonyl-1-piperazinyl)hexanoyl group, (4-(2-methylbenzyloxycarbonyl)-1-piperazinyl)-acetyl group, (4-(2,4-dimethylbenzyloxycarbonyl)-1-piperazinyl)acetyl group, (4-(2,4,6-trimethylbenzyloxycarbonyl)-1-piperazinyl)acetyl group, 4-(2-methoxybenzyloxycarbonyl)-1-piperazinyl)acetyl group, (4-(2,4-dimethoxybenzyloxycarbonyl)-1-piperazinyl)acetyl group, (4-(2,4,6-trimethoxybenzyloxycarbonyl)-1-piperazinyl)-acetyl group, (4-(3,5-ditrifluoromethylbenzyloxy-carbonyl)-1-piperazinyl)acetyl group, (4-(3,5-ditrifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)-acetyl group, 3-(4-(2-trifluoromethylbenzyloxy-

- carbonyl)-1-piperaziny]propionyl group, 3-(4-(2-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]butyryl group, 4-(4-(2-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]butyryl group, 5-(4-(2-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]pentanoyl group, 6-(4-trifluoromethylbenzyloxycarbonyl-1-piperaziny]hexanoyl group, 3-(4-(3-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]butyryl group, 4-(4-(3-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]butyryl group, 5-(4-(3-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]-pentanoyl group, 3-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]butyryl group, 4-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]butyryl group, 5-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]pentanoyl group, 6-(4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperaziny]hexanoyl group, 2-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]-propionyl group, 3-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]butyryl group, 4-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]-butyryl group, 5-(4-(2-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]pentanoyl group, 6-(4-trifluoromethoxybenzyloxycarbonyl-1-piperaziny]-hexanoyl group, 3-(4-(3-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]butyryl group, 4-(4-(3-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]-butyryl group, 5-(4-(3-trifluoromethoxybenzyloxycarbonyl)-1-piperaziny]pentanoyl group, 3-(4-(4-

- trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)-
 butyryl group, 4-(4-(4-trifluoromethoxybenzyloxy-
 carbonyl)-1-piperazinyl)butyryl group, 5-(4-(4-
 trifluoromethoxybenzyloxycarbonyl)-1-piperazinyl)-
 5 pentanoyl group, 6-(4-(4-trifluoromethoxybenzyloxy-
 carbonyl)-1-piperazinyl)hexanoyl group, 4-
 phenylcarbamoylmethyl-1-piperazinylacetyl group, 3-(4-
 phenylcarbamoylmethyl-1-piperazinyl)propionyl group, 4-
 (4-fluorophenylcarbamoylmethyl-1-piperazinyl)acetyl
 10 group, 3-(4-(2,3,4,5,6-pentafluorophenylcarbamoyl-
 methyl)-1-piperazinyl)propionyl group, 4-(4-
 chlorophenylcarbamoylmethyl-1-piperazinylacetyl group,
 3-(4-(3,4-dichlorophenylcarbamoylmethyl)-1-
 piperazinyl)propionyl group, 4-(4-methylphenyl-
 15 carbamoylmethyl)-1-piperazinylacetyl group, 3-(4-(2,4-
 dimethylphenylcarbamoylmethyl)-1-piperazinyl)propionyl
 group, 4-(4-methoxyphenylcarbamoylmethyl)-1-
 piperazinylacetyl group, 3-(4-(2,4,6-trimethoxyphenyl-
 carbamoylmethyl)-1-piperazinyl)propionyl group, 3-(4-
 20 (4-trifluoromethylphenylcarbamoylmethyl)-1-
 piperazinyl)propionyl group, 4-(4-trifluoromethoxy-
 phenylcarbamoylmethyl)-1-piperazinylacetyl group, 3-(4-
 (4-trifluoromethoxyphenylcarbamoylmethyl)-1-
 piperazinyl)propionyl group, 4-phenylcarbamoyl-1-
 25 piperazinylacetyl group, 3-(4-phenylcarbamoyl-1-
 piperazinyl)propionyl group, 4-(4-fluorophenyl-
 carbamoyl-1-piperazinyl)acetyl group, 3-(4-(2,3,4,5,6-
 pentafluorophenylcarbamoyl)-1-piperazinyl)propionyl

group, 4-(4-chlorophenylcarbamoyl-1-piperazinylacetyl group, 4-(2,4-dichlorophenylcarbamoyl-1-piperazinyl-acetyl group, 4-(2,6-dichlorophenylcarbamoyl-1-piperazinylacetyl group, 3-(4-(4-chlorophenyl-

5 carbamoyl)-1-piperazinyl)propionyl group, 4-(4-methylphenylcarbamoyl-1-piperazinylacetyl group, 3-(4-(3,4-dimethylphenylcarbamoyl)-1-piperazinyl)propionyl group, 4-(4-methoxyphenylcarbamoyl-1-piperazinylacetyl group, 3-[4-(2,4,6-trimethoxyphenylcarbamoyl)-1-

10 piperazinyl]propionyl group, 3-(4-(4-trifluoromethylphenylcarbamoyl)-1-piperazinyl)propionyl group, 4-(3,5-ditrifluoromethoxyphenylcarbamoyl)-1-piperazinylacetyl group, 3-(4-(4-trifluoromethoxyphenylcarbamoyl)-1-piperazinyl)propionyl group,

15 3-(4-(4-fluorophenylcarbamoyl)-1-piperazinyl)propionyl group, 3-(4-(4-methylphenylcarbamoyl)-1-piperazinyl)-propionyl group, 3-(4-(4-methoxyphenylcarbamoyl)-1-piperazinyl)propionyl group, 4-(2-benzoxazolinyl)-1-piperazinylacetyl group, 3-(4-(2-benzoxazolinyl)-1-

20 piperazinyl)propionyl group, 4-(4-(2-benzoxazolinyl)-1-piperazinyl)butyryl group, 5-(4-(2-benzoxazolinyl)-1-piperazinyl)pentanoyl group, 6-(4-(2-benzoxazolinyl)-1-piperazinyl)hexanoyl group or the like.

A phenylcarbamoyl group (which may be

25 substituted on the phenyl ring by 1 to 3 groups selected from a group consisting of a halogen atom, amino group which may have a C1-6 alkyl group as a substituent, carboxyl group, C1-6 alkoxycarbonyl

group, halogen-substituted or unsubstituted C1-6 alkyl group, halogen-substituted or unsubstituted C1-6 alkoxy group, piperazinyl group which may have a C1-6 alkyl group as a substituent on the piperazin ring and

5 morpholino group) includes a phenylcarbamoyl group (which may be substituted on the phenyl ring by 1 to 3 groups selected from a group consisting of a halogen atom, amino group which may have 1 to 2 C1-6 alkyl groups as a substituent, carboxyl group, C1-6

10 alkoxy carbonyl group, halogen-substituted or unsubstituted C1-6 alkyl group, halogen-substituted or unsubstituted C1-6 alkoxy group, piperazinyl group which may have 1 to 3 C1-6 alkyl groups as a substituent on the piperazin ring and morpholino group, and an

15 amino group moiety may be substituted by another C1-6 alkyl group or phenyl C1-6 alkyl group), for example, a phenylcarbamoyl group, 2-fluorophenylcarbamoyl group, 3-fluorophenylcarbamoyl group, 4-fluorophenylcarbamoyl group, 2-chlorophenylcarbamoyl group, 3-

20 chlorophenylcarbamoyl group, 4-chlorophenylcarbamoyl group, 2-bromophenylcarbamoyl group, 3-bromophenylcarbamoyl group, 4-bromophenylcarbamoyl group, 2-iodophenylcarbamoyl group, 3-iodophenylcarbamoyl group, 4-iodophenylcarbamoyl group, 2,3-

25 difluorophenylcarbamoyl group, 3,4-difluorophenylcarbamoyl group, 3,5-difluorophenylcarbamoyl group, 2,4-difluorophenylcarbamoyl group, 2,6-difluorophenylcarbamoyl group, 2,3-dichlorophenylcarbamoyl group,

- 3,4-dichlorophenylcarbamoyl group, 3,5-dichlorophenylcarbamoyl group, 2,4-dichlorophenylcarbamoyl group, 2,6-dichlorophenylcarbamoyl group, 3,4,5-trifluorophenylcarbamoyl group, 2,3-difluorophenylcarbamoyl group, 3,4,5-trichlorophenylcarbamoyl group, 2,4,6-trifluorophenylcarbamoyl group, 2,4,6-trichlorophenylcarbamoyl group, 2-methylphenylcarbamoyl group, 3-methylphenylcarbamoyl group, 4-methylphenylcarbamoyl group, 2-methyl-3-chlorophenylcarbamoyl group, 3-methyl-4-chlorophenylcarbamoyl group, 2-chloro-4-methylphenylcarbamoyl group, 2-methyl-3-fluorophenylcarbamoyl group, 2-trifluoromethylphenylcarbamoyl group, 3-trifluoromethylphenylcarbamoyl group, 4-trifluoromethylphenylcarbamoyl group, N-methyl-N-phenylcarbamoyl group, N-(2-fluorophenyl)-N-methylcarbamoyl group, N-(3-fluorophenyl)-N-methylcarbamoyl group, N-(4-fluorophenyl)-N-methylcarbamoyl group, N-(2-chlorophenyl)-N-methylcarbamoyl group, N-(3-chlorophenyl)-N-methylcarbamoyl group, N-(4-chlorophenyl)-N-methylcarbamoyl group, N-(4-bromophenyl)-N-methylcarbamoyl group, N-(2-iodophenyl)-N-methylcarbamoyl group, N-(3-iodophenyl)-N-methylcarbamoyl group, N-(4-iodophenyl)-N-methylcarbamoyl group, N-(2,3-difluorophenyl)-N-methylcarbamoyl group, N-(3,4-difluorophenyl)-N-methylcarbamoyl group, N-(3,5-difluorophenyl)-N-methylcarbamoyl group, N-(2,4-difluorophenyl)-N-methylcarbamoyl group, N-(2,6-difluorophenyl)-N-methyl-

- carbamoyl group, N-(2,3-dichlorophenyl)-N-methyl-
- carbamoyl group, N-(3,4-dichlorophenyl)-N-methyl-
- carbamoyl group, N-(3,5-dichlorophenyl)-N-methyl-
- carbamoyl group, N-(2,4-dichlorophenyl)-N-methyl-
- 5 carbamoyl group, N-(2,6-dichlorophenyl)-N-methyl-
- carbamoyl group, N-(3,4,5-trifluorophenyl)-N-methyl-
- carbamoyl group, N-(3,4,5-trichlorophenyl)-N-methyl-
- carbamoyl group, N-(2,4,6-trifluorophenyl)-N-methyl-
- carbamoyl group, N-(2,4,6-trichlorophenyl)-N-methyl-
- 10 carbamoyl group, N-(2-methylphenyl)-N-methylcarbamoyl
- group, N-(3-methylphenyl)-N-methylcarbamoyl group, N-
- (4-methylphenyl)-N-methylcarbamoyl group, N-(2-methyl-
- 3-chlorophenyl)-N-methylcarbamoyl group, N-(3-methyl-4-
- chlorophenyl)-N-methylcarbamoyl group, N-(2-chloro-4-
- 15 methylphenyl)-N-methylcarbamoyl group, N-(2-methyl-3-
- fluorophenyl)-N-methylcarbamoyl group, N-(2-trifluoro-
- methylphenyl)-N-methylcarbamoyl group, N-(4-trifluoro-
- methylphenyl)-N-methylcarbamoyl group, N-benzyl-N-
- phenylcarbamoyl group, N-benzyl-N-(2-fluorophenyl)-
- 20 carbamoyl group, N-benzyl-N-(3-fluorophenyl)carbamoyl
- group, N-benzyl-N-(4-fluorophenyl)carbamoyl group, N-
- benzyl-N-(2-chlorophenyl)carbamoyl group, N-benzyl-N-
- (3-chlorophenyl)carbamoyl group, N-benzyl-N-(4-chloro-
- phenyl)carbamoyl group, N-benzyl-N-(2-bromophenyl)-
- 25 carbamoyl group, N-benzyl-N-(3-bromophenyl)carbamoyl
- group, N-benzyl-N-(4-bromophenyl)carbamoyl group, N-
- benzyl-N-(2-iodophenyl)carbamoyl group, N-benzyl-N-(3-
- iodophenyl)carbamoyl group, N-benzyl-N-(4-iodophenyl)-

- carbamoyl group, N-benzyl-N-(2,3-difluorophenyl)-
 carbamoyl group, N-benzyl-N-(3,4-difluorophenyl)-
 carbamoyl group, N-benzyl-N-(3,5-difluorophenyl)-
 carbamoyl group, N-benzyl-N-(2,4-difluorophenyl)-
 5 carbamoyl group, N-benzyl-N-(2,6-difluorophenyl)-
 carbamoyl group, N-benzyl-N-(2,3-dichlorophenyl)-
 carbamoyl group, N-benzyl-N-(3,4-dichlorophenyl)-
 carbamoyl group, N-benzyl-N-(3,5-dichlorophenyl)-
 carbamoyl group, N-benzyl-N-(2,4-dichlorophenyl)-
 10 carbamoyl group, N-benzyl-N-(2,6-dichlorophenyl)-
 carbamoyl group, N-benzyl-N-(3,4,5-triifluorophenyl)-
 carbamoyl group, N-benzyl-N-(3,4,5-trichlorophenyl)-
 carbamoyl group, N-benzyl-N-(2,3-difluorophenyl)-
 carbamoyl group, N-benzyl-N-(2,4,6-trichlorophenyl)-
 15 carbamoyl group, N-benzyl-N-(2-methylphenyl)carbamoyl
 group, N-benzyl-N-(3-methylphenyl)carbamoyl group, N-
 benzyl-N-(4-methylphenyl)carbamoyl group, N-benzyl-N-
 (2-methyl-3-chlorophenyl)carbamoyl group, N-benzyl-N-
 (3-methyl-4-chlorophenyl)carbamoyl group, N-benzyl-N-
 20 (2-chloro-4-methylphenyl)carbamoyl group, N-benzyl-N-
 (2-methyl-3-fluorophenyl)carbamoyl group, N-benzyl-N-
 (2-trifluoromethylphenyl)carbamoyl group, N-benzyl-N-
 (3-trifluoromethylphenyl)carbamoyl group, N-benzyl-N-
 (4-trifluoromethylphenyl)carbamoyl group, 2-
 25 pentafluoroethylphenylcarbamoyl group, 3-
 pentafluoroethylphenylcarbamoyl group, 4-
 pentafluoroethylphenylcarbamoyl group, 2-
 isopropylphenylcarbamoyl group, 3-isopropylphenyl-

- carbamoyl group, 4-isopropylphenylcarbamoyl group, 2-tert-butylphenylcarbamoyl group, 3-tert-butylphenylcarbamoyl group, 4-tert-butylphenylcarbamoyl group, 2-sec-butylphenylcarbamoyl group, 3-sec-butylphenyl-
- 5 carbamoyl group, 4-sec-butylphenylcarbamoyl group, 2-n-heptafluoropropylphenylcarbamoyl group, 3-n-heptafluoropropylphenylcarbamoyl group, 4-n-heptafluoropropylphenylcarbamoyl group, 4-pentylphenylcarbamoyl group, 4-hexylphenylcarbamoyl group, 2-
- 10 methoxyphenylcarbamoyl group, 3-methoxyphenylcarbamoyl group, 4-methoxyphenylcarbamoyl group, 2-methoxy-3-chlorophenylcarbamoyl group, 2-fluoro-3-methoxyphenylcarbamoyl group, 2-fluoro-4-methoxyphenylcarbamoyl group, 2,6-
- 15 dimethoxyphenylcarbamoyl group, 2,3,4-trifluorophenylcarbamoyl group, 3,4,5-trifluorophenylcarbamoyl group, 2-trifluoromethoxyphenylcarbamoyl group, 3-trifluoromethoxyphenylcarbamoyl group, 4-trifluoromethoxyphenylcarbamoyl group, 2-pentafluoroethoxyphenyl-
- 20 carbamoyl group, 3-pentafluoroethoxyphenylcarbamoyl group, 4-pentafluoroethoxyphenylcarbamoyl group, 2-isopropoxyphenylcarbamoyl group, 3-isopropoxyphenylcarbamoyl group, 4-isopropoxyphenylcarbamoyl group, 2-tert-butoxyphenylcarbamoyl group, 3-tert-butoxyphenyl-
- 25 carbamoyl group, 4-tert-butoxyphenylcarbamoyl group, 2-sec-butoxyphenylcarbamoyl group, 3-sec-butoxyphenylcarbamoyl group, 4-sec-butoxyphenylcarbamoyl group, 2-n-heptafluoropropoxyphenylcarbamoyl group, 3-n-

- heptafluoropropoxyphenylcarbamoyl group, 4-n-heptafluoropropoxyphenylcarbamoyl group, 4-pentyloxyphenylcarbamoyl group, 4-hexyloxyphenylcarbamoyl group, 2-dimethylaminophenylcarbamoyl group, 2,4-dimethyl-
- 5 aminophenylcarbamoyl group, 2,4,6-trimethylamino-phenylcarbamoyl group, 3-dimethylaminophenylcarbamoyl group, 4-methylaminophenylcarbamoyl group, 2-carboxyphenylcarbamoyl group, 3-carboxyphenylcarbamoyl group, 4-carboxyphenylcarbamoyl group, 2,3-dicarboxy-
- 10 phenylcarbamoyl group, 2,4,6-tricarboxyphenylcarbamoyl group, 2-methoxycarbonylphenylcarbamoyl group, 3-methoxycarbonylphenylcarbamoyl group, 4-methoxycarbonylphenylcarbamoyl group, 2-ethoxycarbonylphenyl-
- 15 4-ethoxycarbonylphenylcarbamoyl group, 2-propoxycarbonylphenylcarbamoyl group, 3-propoxycarbonylphenylcarbamoyl group, 4-propoxycarbonylphenylcarbamoyl group, 2-(1-piperazinyl)phenylcarbamoyl group, 2-(2,4-
- 20 dimethyl-1-piperazinyl)phenylcarbamoyl group, 2-(2,3,4-trimethyl-1-piperazinyl)phenylcarbamoyl group, 2-(4-methyl-1-piperazinyl)phenylcarbamoyl group, 3-(4-methyl-1-piperazinyl)phenylcarbamoyl group, 4-(4-
- methyl-1-piperazinyl)phenylcarbamoyl group, 2-morpholinophenylcarbamoyl group, 3-
- 25 morpholinophenylcarbamoyl group, 4-morpholinophenylcarbamoyl group or the like.

A phenyl C1-6 alkylcarbamoyl group (which may be substituted on the phenyl ring by at least one group

selected from a group consisting of a halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group) includes a phenyl C1-6 alkylcarbamoyl group (which may

5 be substituted on the phenyl ring by 1 to 3 groups selected from a group consisting of a halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group), for example, a benzylcarbamoyl group, 1-

10 phenylethylcarbamoyl group, 2-phenylethylcarbamoyl group, 3-phenylpropylcarbamoyl group, 4-phenylbutylcarbamoyl group, 5-phenylpentylcarbamoyl group, 6-phenylhexylcarbamoyl group, 2-methyl-3-phenylpropylcarbamoyl group, 1,1-dimethyl-2-phenylethylcarbamoyl

15 group, 2-methylbenzylcarbamoyl group, 3-methylbenzylcarbamoyl group, 4-methylbenzylcarbamoyl group, 2,4-dimethylbenzylcarbamoyl group, 2,4,6-trimethylbenzylcarbamoyl group, 4-trifluoromethyl-3-methoxybenzylcarbamoyl group, 2-ethylbenzylcarbamoyl group, 3-

20 ethylbenzylcarbamoyl group, 4-ethylbenzylcarbamoyl group, 2-isopropylbenzylcarbamoyl group, 3-isopropylbenzylcarbamoyl group, 4-isopropylbenzylcarbamoyl group, 2,4-dimethoxybenzylcarbamoyl group, 2,4,6-trimethoxybenzylcarbamoyl group, 4-trifluoro-

25 methoxy-3-methylbenzylcarbamoyl group, 4-methoxybenzylcarbamoyl group, 2-ethoxybenzylcarbamoyl group, 3-ethoxybenzylcarbamoyl group, 4-ethoxybenzylcarbamoyl group, 2-isopropoxybenzylcarbamoyl group, 3-

isopropoxybenzylcarbamoyl group, 4-isopropoxybenzylcarbamoyl group, 4-trifluoromethylbenzylcarbamoyl group, 4-pentafluoroethylbenzylcarbamoyl group, 4-n-heptafluoropropylbenzylcarbamoyl group, 4-trifluoro-
5 methoxybenzylcarbamoyl group, 4-pentafluoroethoxybenzylcarbamoyl group, 4-n-heptafluoropropoxybenzylcarbamoyl group or the like.

A piperazinylcarbonyl group (which may be substituted on the piperazine ring by at least one
10 group selected from a group consisting of a C1-6 alkoxy carbonyl group, phenyl C1-6 alkoxy carbonyl group which may have at least one halogen-substituted or unsubstituted C1-6 alkyl group on the phenyl ring and phenyl C1-6 alkyl group which may have at least one
15 halogen-substituted or unsubstituted C1-6 alkyl group on the phenyl ring) includes a piperazinylcarbonyl group (which may be substituted on the piperazine ring by 1 to 3 groups selected from a group consisting of a C1-6 alkoxy carbonyl group, phenyl C1-6 alkoxy carbonyl
20 group which may have 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups on the phenyl ring and phenyl C1-6 alkyl group which may have 1 to 3 halogen-substituted or unsubstituted C1-6 alkyl groups on the phenyl ring), for example, a 1-piperazinylcarbonyl
25 group, 2-piperazinylcarbonyl group, 3-piperazinylcarbonyl group, 4-piperazinylcarbonyl group, 4-tert-butoxycarbonyl-1-piperazinylcarbonyl group, 4-(4-methylbenzyloxycarbonyl)-1-piperazinylcarbonyl group,

4-(2,4-dimethylbenzyloxycarbonyl)-1-piperazinylcarbonyl group, 4-(2,4,6-trimethylbenzyloxycarbonyl)-1-piperazinylcarbonyl group, 4-(4-trifluoromethylbenzyloxycarbonyl)-1-piperazinylcarbonyl group, 4-(4-methylbenzyl)-1-piperazinylcarbonyl group, 4-(3,4-dimethylbenzyl)-1-piperazinylcarbonyl group, 4-(3,4,5-trimethylbenzyl)-1-piperazinylcarbonyl group, 4-(4-trifluoromethylbenzyl)-1-piperazinylcarbonyl group, 4-methoxycarbonyl-3-benzyl-1-piperazinylcarbonyl group, 4-benzyloxycarbonyl-3,5-dimethoxycarbonyl-1-piperazinylcarbonyl group or the like.

A phenyl C1-6 alkoxy group (the phenyl group may have at least one group selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group, as a substituent on the phenyl ring) is a phenyl C1-6 alkoxy group which may be substituted by 1 to 5, preferably 1 to 3 groups selected from a group consisting of a halogen atom, halogen-substituted or unsubstituted C1-6 alkyl group and halogen-substituted or unsubstituted C1-6 alkoxy group, as defined above, examples of which include a benzyloxy group, 2-phenylethoxy group, 3-phenylpropoxy group, 2-phenylpropoxy group, 4-phenylbutoxy group, 5-phenylpentoxy group, 4-phenylpentoxy group, 6-phenylhexyloxy group, 2-fluorobenzyloxy group, 3-fluorobenzyloxy group, 4-fluorobenzyloxy group, 2-(2-fluorophenyl)ethoxy group, 2-(3-fluorophenyl)ethoxy

- group, 2-(4-fluorophenyl)ethoxy group, 2-chloro-benzyloxy group, 3-chlorobenzyloxy group, 4-chlorobenzyloxy group, 2-fluoro-4-bromobenzyloxy group, 4-chloro-3-fluorobenzyloxy group, 2,3,4-trichloro-
- 5 benzyloxy group, 3,4,5-trifluorobenzyloxy group, 2,3,4,5,6-pentafluorobenzyloxy group, 2,4,6-trichlorobenzyloxy group, 4-isopropylbenzyloxy group, 4-n-butylbenzyloxy group, 4-methylbenzyloxy group, 2-methylbenzyloxy group, 3-methylbenzyloxy group, 2,4-
- 10 dimethylbenzyloxy group, 2,3-dimethylbenzyloxy group, 2,6-dimethylbenzyloxy group, 3,5-dimethylbenzyloxy group, 2,5-dimethylbenzyloxy group, 2,4,6-trimethylbenzyloxy group, 3,5-di(trifluoromethyl)benzyloxy group, 4-isopropoxybenzyloxy group, 4-n-butoxybenzyloxy
- 15 group, 4-methoxybenzyloxy group, 2-methoxybenzyloxy group, 3-methoxybenzyloxy group, 2,4-dimethoxybenzyloxy group, 2,3-dimethoxybenzyloxy group, 2,6-dimethoxybenzyloxy group, 3,5-dimethoxybenzyloxy group, 2,5-dimethoxybenzyloxy group, 2,4,6-trimethoxybenzyloxy
- 20 group, 3,5-di(trifluoromethoxy)benzyloxy group, 2-isopropoxybenzyloxy group, 3-chloro-4-methoxybenzyloxy group, 2-chloro-4-trifluoromethoxybenzyloxy group, 3-methyl-4-fluorobenzyloxy group, 4-bromo-3-trifluoromethylbenzyloxy group, 2-(2-chlorophenyl)-
- 25 ethoxy group, 2-(3-chlorophenyl)ethoxy group, 2-(4-chlorophenyl)ethoxy group, 2-trifluoromethylbenzyloxy group, 3-trifluoromethylbenzyloxy group, 4-trifluoromethylbenzyloxy group, 2-trifluoromethoxybenzyloxy

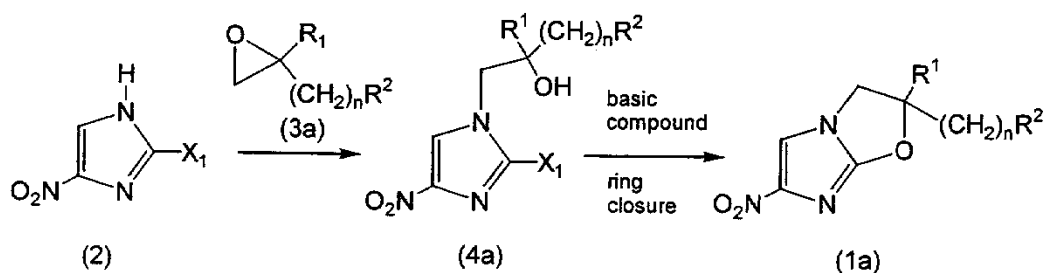
group, 3-trifluoromethoxybenzyloxy group, 4-trifluoromethoxybenzyloxy group, 2-(2-trifluoromethylphenyl)ethoxy group, 2-(3-trifluoromethylphenyl)ethoxy group, 2-(4-trifluoromethylphenyl)ethoxy group, 2-(2-trifluoromethoxyphenyl)ethoxy group, 2-(3-trifluoromethoxyphenyl)ethoxy group, 2-(4-trifluoromethoxyphenyl)ethoxy group, 3-(2-trifluoromethylphenyl)propoxy group, 3-(3-trifluoromethylphenyl)propoxy group, 3-(4-trifluoromethylphenyl)propoxy group, 3-(2-trifluoromethylphenyl)propoxy group, 3-(3-trifluoromethoxyphenyl)propoxy group, 3-(4-trifluoromethoxyphenyl)propoxy group, 4-(3-trifluoromethylphenyl)butoxy group, 5-(4-trifluoromethylphenyl)pentoxy group, 4-(4-trifluoromethylphenyl)pentoxy group, 4-(4-trifluoromethoxyphenyl)pentoxy group, 6-(3-trifluoromethylphenyl)hexyloxy group, 6-(4-trifluoromethylphenyl)hexyloxy group, 6-(4-trifluoromethoxyphenyl)hexyloxy group, or the like.

A C3-8 cycloalkyl-C1-6 alkyl group is a group consisting of a cyclic alkyl group having 3 to 8 carbon atoms and an alkyl group having 1 to 6 carbon atoms, examples of which include a cyclopropylmethyl group, 2-cyclopropylethyl group, 3-cyclopropylpropyl group, 4-cyclopropylbutyl group, 5-cyclopropylpentyl group, 6-cyclopropylhexyl group, cyclobutylmethyl group, 2-cyclobutylethyl group, 3-cyclobutylpropyl group, 4-cyclobutylbutyl group, 5-cyclobutylpentyl group, 6-cyclobutylhexyl group, cyclopentylmethyl group, 2-

cyclopentylethyl group, 3-cyclopentylpropyl group, 4-cyclopentylbutyl group, 5-cyclopentylpentyl group, 6-cyclopentylhexyl group, cyclohexylmethyl group, 2-cyclohexylethyl group, 3-cyclohexylpropyl group, 4-cyclohexylbutyl group, 5-cyclohexylpentyl group, 6-cyclohexylhexyl group, cycloheptylmethyl group, 2-cycloheptylethyl group, 3-cycloheptylpropyl group, 4-cycloheptylbutyl group, 5-cycloheptylpentyl group, 6-cycloheptylhexyl group, cyclooctylmethyl group, 2-cyclooctylethyl group, 3-cyclooctylpropyl group, 4-cyclooctylbutyl group, 5-cyclooctylpentyl group, 6-cyclooctylhexyl group or the like.

The methods for producing the compounds of the present invention are explained below.

15 Reaction scheme 1



wherein R^1 , R^2 and n are the same as above, and X_1 represents a halogen atom or nitro group.

According to reaction scheme 1, the compound
 20 of the present invention represented by general formula (1a) is produced by reacting a 4-nitroimidazole

compound represented by general formula (2) with an epoxy compound represented by general formula (3a) in the presence or absence of a basic compound to obtain a compound represented by general formula (4a), and then
5 subjecting the obtained compound to a ring closure reaction.

The molar ratio of the compound of general formula (2) to the compound of general formula (3a) may be generally between 1 : 0.5 and 1 : 5, and preferably
10 between 1 : 0.5 and 1 : 3.

Known compounds can be widely used as a basic compound herein. Examples of such a basic compound include inorganic basic compounds such as a metal hydride, metal alcoholate, hydroxide, carbonate or
15 hydrogencarbonate, and organic basic compounds such as acetate.

Specific examples of a metal hydride include sodium hydride and potassium hydride. Specific examples of a metal alcoholate include sodium
20 methoxide, sodium ethoxide and potassium tert-butoxide. Specific examples of a hydroxide include sodium hydroxide and potassium hydroxide. Specific examples of a carbonate include sodium carbonate and potassium carbonate. Specific examples of a hydrogencarbonate
25 include sodium hydrogencarbonate and potassium hydrogencarbonate. In addition to the above compounds, sodium amide and the like may also be included in the inorganic basic compounds.

Specific examples of acetate include sodium acetate and potassium acetate. In addition to these compounds, specific examples of organic basic compounds include triethylamine, trimethylamine, diisopropyl-
5 ethylamine, pyridine, dimethylaniline, 1-methyl-pyrrolidine, N-methylmorpholine, 1,5-diazabicyclo-[4.3.0]nonene-5(DBN), 1,8-diazabicyclo[5.4.0]undecene-7(DBU), and 1,4-diazabicyclo[2.2.2]octane(DABCO).

The molar ratio of the above basic compound
10 to the compound of general formula (2) may be generally between 0.1 : 1 and 2 : 1, preferably between 0.1 : 1 and 1 : 1, and more preferably between 0.1 : 1 and 0.5 : 1.

The reaction of the compound of general
15 formula (2) with the compound of general formula (3a) is generally carried out in an appropriate solvent.

Common solvents can be widely used as the above solvent, as long as it does not inhibit the reaction. Examples of such a solvent include aprotic
20 polar solvents such as dimethylformamide (DMF), dimethylsulfoxide (DMSO) or acetonitrile, ketone solvents such as acetone or methylethylketone, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, alcohol solvents such as
25 methanol, ethanol, isopropanol, n-butanol or tert-butanol, ether solvents such as tetrahydrofuran (THF), dioxane, dipropyl ether, diethyl ether or diglyme, ester solvents such as ethyl acetate or methyl acetate,

and mixed solvents thereof. Water may be contained in these solvents.

The reaction of the compound of general formula (2) with the compound of general formula (3a) is carried out, for example, as follows: The compound of general formula (2) is dissolved in a reaction solvent, and while stirring, a basic compound is added to the mixture cooled on ice or at up to room temperature (30°C). Thereafter, the mixture is stirred at room temperature to 80°C for 30 minutes to 1 hour, and the compound of general formula (3a) is then added thereto. Thereafter, the mixture is further stirred generally at room temperature to 100°C, and preferably 50°C to 80°C, generally for 30 minutes to 60 hours, and preferably for 1 to 50 hours.

The compound (2) used as a starting material is known. The compound (3a) includes a novel compound, and a method for producing the compound will be explained later.

The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, a compound of general formula (4a) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

The compound of the present invention

represented by general formula (1a) is produced by
subjecting the compound represented by general formula
(4a) to a ring closure reaction. The ring closure
reaction is carried out by dissolving the above
5 obtained compound represented by general formula (4a)
in a reaction solvent and then adding a basic compound
thereto followed by stirring.

Herein, as a reaction solvent and a basic
compound, there can be used the same reaction solvent
10 and the same basic compound as used in the above
reaction of the compound of general formula (2) with
the compound of general formula (3a).

The molar ratio of the basic compound to the
compound of general formula (4a) is generally equal to
15 1 : 1 or higher, preferably between 1 : 1 and 5 : 1,
and more preferably between 1 : 1 and 2 : 1.

The reaction temperature for the ring closure
reaction is generally 0°C to 150°C, preferably room
temperature to 120°C, and more preferably 50°C to 100°C.
20 The reaction time is generally 30 minutes to 48 hours,
preferably 1 to 24 hours, and more preferably 1 to 12
hours.

The thus obtained reaction mixture is, for
example, cooled, and then its crude reaction product is
25 separated therefrom by an isolation operation such as
filtration, concentration or extraction. Thereafter,
the compound of general formula (1a) can be isolated
and purified from the reaction mixture by a common

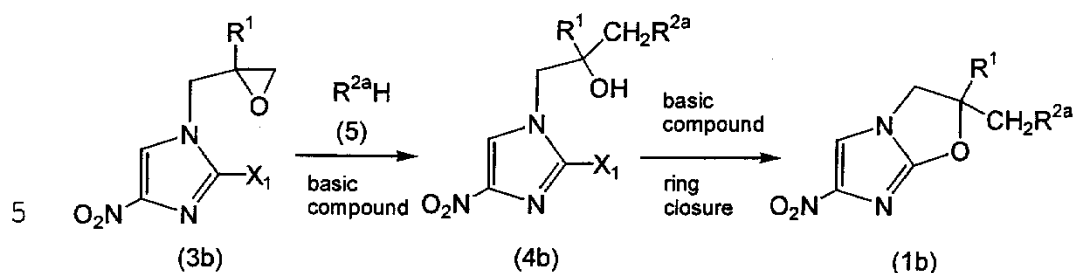
purification operation such as column chromatography or recrystallization.

In the present invention, the reaction mixture can be directly subjected to the following ring closure reaction without isolating the compound of general formula (4a) generated as a result of the reaction of the compound of general formula (2) with the compound of general formula (3a). For example, the compound of general formula (2) is reacted with the compound of general formula (3a) at room temperature to 80°C, and thereafter, a basic compound is added to the obtained reaction mixture followed by stirring at 50°C to 100°C. Otherwise, after the compound of general formula (2) is reacted with the compound of general formula (3a) at room temperature to 80°C, the obtained reaction mixture is concentrated, and the residue is dissolved in a high boiling solvent. Thereafter, a basic compound is added to the obtained solution followed by stirring at 50°C to 100°C, so as to produce a compound of interest represented by general formula (1a).

Alternatively, in the reaction of the compound of general formula (2) with the compound of general formula (3a), a basic compound is used at a molar ratio of the basic compound to the compound (2) that is between 0.9 : 1 and 2 : 1. The stirring is carried out at 50°C to 100°C, so that the reaction of the compound of general formula (2) with the compound

of general formula (3a) is carried out in a single process to produce a compound of interest represented by general formula (1a).

Reaction scheme 2



wherein R^1 and X_1 are the same as above, and R^{2a} represents a group represented by general formula (A), (B), (E) or (F).

According to reaction scheme 2, the compound
 10 of the present invention represented by general formula (1b) is produced by reacting a compound represented by general formula (3b) with a compound represented by general formula (5) or a salt thereof, so as to obtain a compound represented by general formula (4b), and
 15 then subjecting the obtained compound to a ring closure reaction, in the presence of a basic compound.

The compound (3b) is novel, and a method for producing the compound will be explained later (reaction scheme 13). The compound (5), in which R^{2a}
 20 represents a group represented by general formula (E), includes a novel compound. An example of methods for producing the above compound will be described later in

Reference Examples 182, 186 to 188, and 192.

The molar ratio of the compound of general formula (3b) to the compound of general formula (5) may be generally between 1 : 0.5 and 1 : 5, and preferably
5 between 1 : 0.5 and 1 : 2.

The reaction of the compound of general formula (3b) with the compound of general formula (5) is carried out in the presence of a basic compound in an appropriate solvent.

10 As a basic compound and a reaction solvent, there can be used the same basic compound and the same reaction solvent as used in the above reaction of the compound of general formula (2) with the compound of general formula (3a). The molar ratio of the basic
15 compound to the compound of general formula (3b) is generally a catalytic amount, preferably between 0.1 : 1 and 3 : 1, and more preferably between 0.1 : 1 and 2 : 1.

In the case of the compound (5) in which R^{2a}
20 represents a group represented by general formula (B) or (E), the salt of the compound (5) can be used instead of using the compound (5) and a basic compound. Examples of such a salt include alkali metal salts such as a sodium salt or a potassium salt of the compound
25 (5).

The reaction of the compound of general formula (3b) with the compound of general formula (5) is carried out, generally at room temperature to 150°C,

preferably at room temperature to 120°C, and more preferably at room temperature to 80°C. The reaction time is generally 10 minutes to 48 hours, preferably 10 minutes to 24 hours, and more preferably 10 minutes to 5 2 hours.

The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, 10 the compound of general formula (4b) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

The compound of the present invention 15 represented by general formula (1b) is produced by subjecting the compound represented by general formula (4b) to a ring closure reaction. The ring closure reaction is carried out by dissolving the above obtained compound represented by general formula (4b) 20 in a reaction solvent and then adding a basic compound thereto followed by stirring at a certain temperature.

Herein, as a reaction solvent and a basic compound, there can be used the same reaction solvent and the same basic compound as used in the above 25 reaction of the compound of general formula (3b) with the compound of general formula (5).

The molar ratio of the basic compound to the compound of general formula (4b) is generally equal to

1 : 1 or higher, preferably between 1 : 1 and 5 : 1, and more preferably between 1 : 1 and 2 : 1.

The reaction temperature for the ring closure reaction is generally 0°C to 150°C, preferably room temperature to 120°C, and more preferably 50°C to 100°C. The reaction time is generally 10 minutes to 48 hours, preferably 10 minutes to 24 hours, and more preferably 20 minutes to 4 hours.

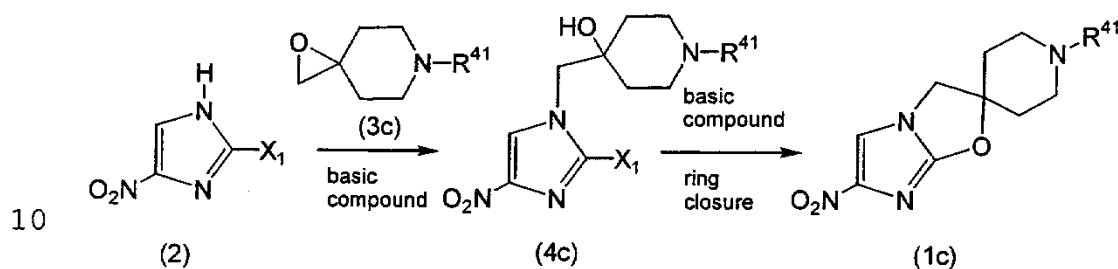
The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the compound of general formula (1b) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

In the present invention, the reaction mixture can be directly subjected to the following ring closure reaction without isolating the compound of general formula (4b) produced as a result of the reaction of the compound of general formula (3b) with the compound of general formula (5), so as to produce a compound of interest that is the compound of the present invention represented by general formula (1b).

Particularly, in the case of the compound (5) in which R^{2a} represents a group represented by general formula (B) or (E), if a basic compound is used to the compound (5) at a molar ratio of equal to 1 : 1 or

higher, and if the reaction is carried out at 50°C to 100°C, the compound of the present invention represented by general formula (1b) can be produced in a single process without isolating an intermediate (4). In the case of using the alkali metal salt (e.g., a sodium salt or a potassium salt) of the compound (5) in which R^{2a} represents a group represented by general formula (B) or (E), the same thing can be said.

Reaction scheme 3



wherein R^{41} and X_1 are the same as above.

According to reaction scheme 3, the compound of the present invention represented by general formula (1c) is produced by reacting the compound represented by general formula (2) with a compound represented by general formula (3c) so as to obtain a compound represented by general formula (4c), and then subjecting the obtained compound to a ring closure reaction, in the presence of a basic compound.

20 The compound (3c) includes a novel compound, and a method for producing the compound will be explained later (reaction scheme 14).

The molar ratio of the compound of general formula (2) to the compound of general formula (3c) may be generally between 0.1 : 1 and 2 : 1, preferably between 0.1 : 1 and 1 : 1, and more preferably between
5 0.1 : 1 and 0.5 : 1.

The reaction of the compound of general formula (2) with the compound of general formula (3c) is carried out in the presence of a basic compound in an appropriate solvent.

10 As a basic compound and a reaction solvent, there can be used the same basic compound and the same reaction solvent as used in the above reaction of the compound of general formula (2) with the compound of general formula (3a). The molar ratio of the basic
15 compound to the compound of general formula (2) is generally 0.1 : 1 or higher, preferably between 1 : 1 and 5 : 1, and more preferably between 1 : 1 and 2 : 1.

The reaction of the compound of general formula (2) with the compound of general formula (3c)
20 is carried out, for example, as follows: The compound of general formula (2) is dissolved in a reaction solvent, and while stirring, a basic compound is added to the mixture cooled on ice or at up to room temperature (30°C). Thereafter, the mixture is stirred at room
25 temperature to 80°C for 30 minutes to 1 hour, and the compound of general formula (3c) is then added thereto. Thereafter, the mixture is further stirred generally at room temperature to 100°C, and preferably 50°C to 80°C,

generally for 30 minutes to 24 hours, preferably for 1 to 12 hours, and more preferably for 1 to 8 hours.

The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is
5 separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the compound of general formula (4c) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or
10 recrystallization.

The compound of the present invention represented by general formula (1c) is produced by subjecting the compound represented by general formula (4c) to a ring closure reaction. The ring closure
15 reaction is carried out by dissolving the above obtained compound represented by general formula (4c) in a reaction solvent and then adding a basic compound thereto followed by stirring at a certain temperature.

Herein, as a reaction solvent and a basic
20 compound, there can be used the same reaction solvent and the same basic compound as used in the above reaction of the compound of general formula (2) with the compound of general formula (3c).

The molar ratio of the basic compound to the
25 compound of general formula (4c) is generally equal to 1 : 1 or higher, preferably between 1 : 1 and 5 : 1, and more preferably between 1 : 1 and 2 : 1.

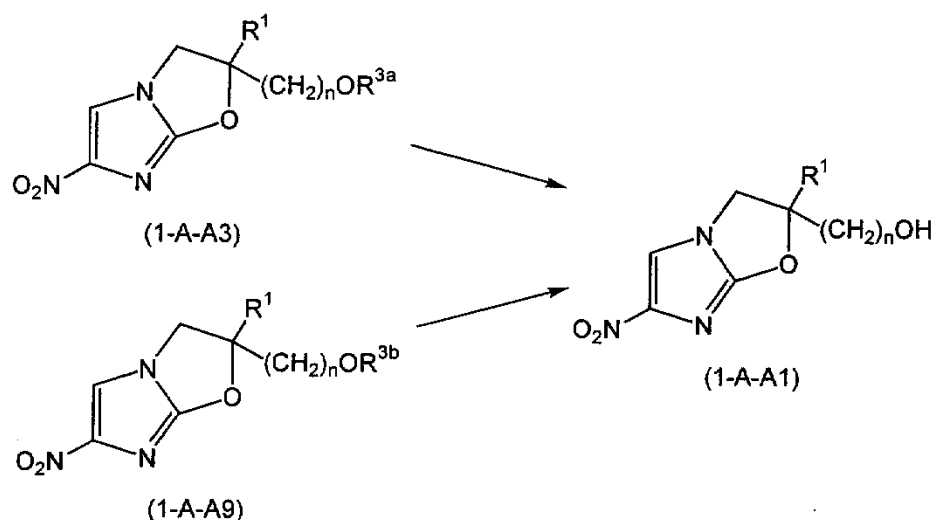
The reaction temperature for the ring closure

reaction is generally 0°C to 150°C, preferably room temperature to 120°C, and more preferably 50°C to 100°C. The reaction time is generally 30 minutes to 48 hours, preferably 1 to 24 hours, and more preferably 1 to 12 5 hours.

The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, 10 the compound of general formula (1c) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

In the present invention, the reaction 15 mixture can be directly subjected to the following ring closure reaction without isolating the compound of general formula (4c) generated as a result of the reaction of the compound of general formula (2) with the compound of general formula (3c), so that the 20 compound of interest of the present invention represented by general formula (1c) can be produced.

Reaction scheme 4



wherein R^1 and n are the same as above, R^{3a} represents a C1-C6 alkoxy-C1-C6 alkyl group, and R^{3b} represents a C1-C6 alkanoyl group.

- 5 A compound wherein, in general formula (1), R^2 represents a group represented by general formula (A) and R^3 represents A1) a hydrogen atom (hereinafter referred to as a compound (1-A-A1)), is produced by the hydrolysis of a corresponding compound in which R^3
- 10 represents A3) a C1-C6 alkoxy-C1-C6 alkyl group (hereinafter referred to as a compound (1-A-A3)), or a corresponding compound wherein R^3 represents A9) a C1-C6 alkanoyl group (hereinafter referred to as a compound (1-A-A9)).
- 15 Hydrolysis of the compound (1-A-A3) is carried out under acidic conditions. The hydrolysis is carried out, for example, by suspending or dissolving the compound (1-A-A3) in an appropriate solvent, and

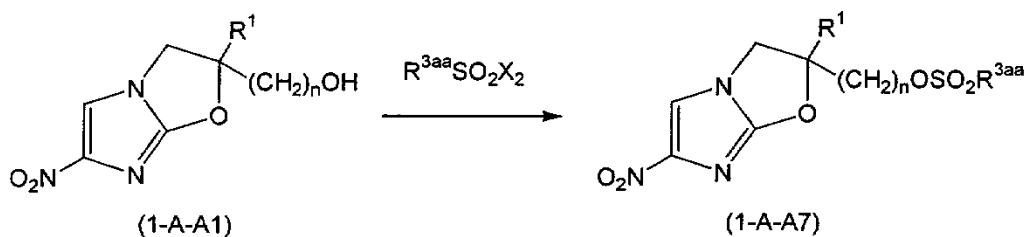
adding acid to the obtained solution followed by stirring at 0°C to 120°C. Example of the used solvent may include water, alcohol solvents such as methanol, ethanol, isopropanol or ethylene glycol, acetonitrile, acetone, toluene, DMF, DMSO, acetic acid, trifluoroacetic acid, and mixed solvents thereof. Examples of the used acid may include organic acids such as trifluoroacetic acid or acetic acid, and inorganic acids such as hydrochloric acid, bromic acid, hydrobromic acid or sulfuric acid. Organic acids such as trifluoroacetic acid or acetic acid can also be used as reaction solvents. The reaction temperature is generally 0°C to 120°C, preferably room temperature to 100°C, and more preferably room temperature to 80°C. The reaction time is generally 30 minutes to 24 hours, preferably 30 minutes to 12 hours, and more preferably 1 to 8 hours.

Hydrolysis of the compound (1-A-A9) is carried out under basic condition. The hydrolysis is carried out, for example, by suspending or dissolving the compound (1-A-A9) in an appropriate solvent, and adding base to the obtained solution followed by stirring at 0°C to 120°C. Example of the used solvent may include water, alcohol solvents such as methanol, ethanol, isopropanol or ethylene glycol, and mixed solvents thereof. Examples of the used base may include alkali metal hydroxides such as sodium hydroxide or potassium hydroxide, alkali metal

carbonates such as sodium carbonate or potassium carbonate, and acetates such as sodium acetate. The reaction temperature is generally 0°C to 120°C, preferably room temperature to 100°C, and more preferably room temperature to 80°C. The reaction time is generally 30 minutes to 24 hours, preferably 30 minutes to 12 hours, and more preferably 1 to 8 hours.

The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the compound (1-A-A1) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

Reaction scheme 5



wherein R^1 and n are the same as above, X_2 represents a halogen atom, and R^{3aa} represents a C1-C6 alkyl group or phenyl group which may be substituted by the C1-C6 alkyl group.

A compound wherein, in general formula (1), R^2 represents a group represented by general formula (A)

and R^3 represents a sulfonyl group of the definitions A7) or A8) (hereinafter referred to as a compound (1-A-A7)), is produced by the sulfonylation of a corresponding compound wherein R^3 represents A1) a
5 hydrogen atom (the compound (1-A-A1)).

For the sulfonylation of the compound (1-A-A1), reaction conditions for the common sulfonylation reaction of alcohol can be widely applied. For example, the compound (1-A-A1) is dissolved in an
10 appropriate solvent, and the compound represented by general formula $R^{3aa}SO_2X_2$ is added to the obtained solution in the presence of a basic compound followed by stirring at $0^\circ C$ to $150^\circ C$, so that the compound (1-A-A7) can be obtained.

15 Any solvent can be used herein, as long as it does not inhibit the sulfonylation reaction. Examples of such a solvent include halogenated hydrocarbon solvents such as methylene chloride or chloroform, aprotic polar solvents such as DMF, DMSO or
20 acetonitrile, aromatic hydrocarbon solvents such as benzene, toluene or xylene, hydrocarbon solvents such as tetralin, liquid paraffin or cyclohexane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, ethyl acetate, acetone, and mixed
25 solvents thereof.

The compound represented by general formula $R^{3aa}SO_2X_2$ is used to the compound (1-A-A1) at a molar ratio of generally equal to 1 : 1 or higher, preferably

between 1 : 1 and 2 : 1, and more preferably between 1 : 1 and 1.1 : 1.

As a basic compound, there can be used the same basic compound as used in the above reaction of
5 the compound of general formula (2) with the compound of general formula (3a).

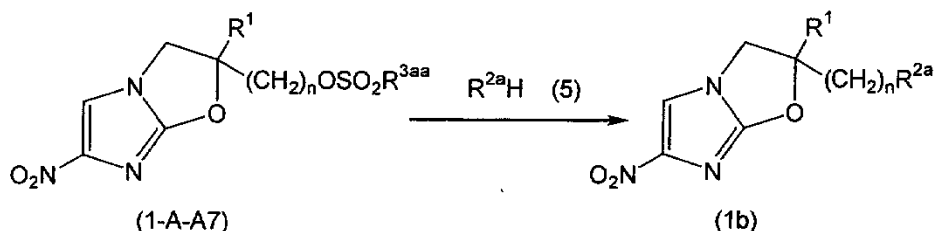
The molar ratio of the basic compound to the compound represented by general formula $R^{3aa}SO_2X_2$ is generally equal to 1 : 1 or higher, preferably between
10 1 : 1 and 5 : 1, and more preferably between 1 : 1 and 2 : 1.

In the present sulfonylation reaction, 4-dimethylaminopyridine, 4-(1-pyrrolidinyl)pyridine or the like can be used as a catalyst.

15 The reaction temperature is generally 0°C to 150°C, preferably 0°C to 100°C, and more preferably 0°C to 60°C. The reaction time is generally 30 minutes to 48 hours, preferably 1 to 24 hours, and more preferably 1 to 4 hours.

20 The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the compound (1-A-A7) can be isolated and purified from
25 the reaction mixture by a common purification operation such as column chromatography or recrystallization.

Reaction scheme 6



wherein R^1 , R^{2a} , R^{3aa} and n are the same as above.

A compound wherein, in general formula (1), R^2 represents a group represented by general formula (A), (B), (E) or (F) (hereinafter referred to as a compound (1b)), is also produced by the reaction of a corresponding compound wherein R^2 represents a group represented by general formula (A) and R^3 represents a sulfonyl group of the definitions A7) or A8) (a compound (1-A-A7)) with a compound represented by general formula (5).

The reaction of the compound (1-A-A7) with the compound represented by general formula (5) is carried out in an appropriate solvent in the presence of a basic compound.

Any solvent can be used herein, as long as it does not inhibit the present reaction. Examples of such a solvent include water, aprotic polar solvents such as DMF, DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin, liquid paraffin or cyclohexane, alcohol solvents such as

ethanol, isopropanol, n-butanol or tert-butanol, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, ethyl acetate, acetone, and mixed solvents thereof.

5 As a basic compound, there can be used the same basic compound as used in the above reaction of the compound of general formula (2) with the compound of general formula (3a).

10 The molar ratio of the basic compound to the compound (1-A-A7) is generally equal to 1 : 1 or higher, preferably between 1 : 1 and 5 : 1, and more preferably between 1 : 1 and 2 : 1.

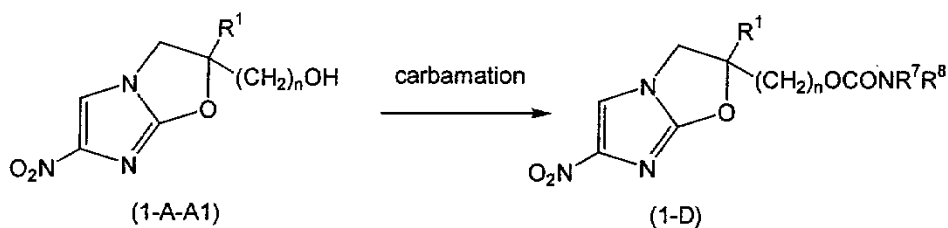
15 The molar ratio of the compound represented by general formula (5) to the compound (1-A-A7) may be generally equal to 1 : 1 or higher, preferably between 0.9 : 1 and 2 : 1, and more preferably between 0.9 : 1 and 1.5 : 1.

20 The reaction temperature is generally room temperature to 150°C, preferably room temperature to 100°C, and more preferably 60°C to 100°C. The reaction time is generally 10 minutes to 24 hours, preferably 10 minutes to 12 hours, and more preferably 20 minutes to 7 hours.

25 The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, a compound of interest can be isolated and purified from

the reaction mixture by a common purification operation such as column chromatography or recrystallization.

Reaction scheme 7



5 wherein R¹, n, R⁷ and R⁸ are the same as above.

A compound wherein, in general formula (1), R² represents a group represented by general formula (D) (hereinafter referred to as a compound (1-D)), is produced by the carbamation of a compound wherein R² represents a group represented by general formula (A) and R³ represents A1) a hydrogen atom (the compound (1-A-A1)).

For the carbamation of the compound (1-A-A1), reaction conditions for the common carbamation reaction of alcohol can be widely applied. Examples of such a method include: (1) a method using amine represented by a general formula R⁷R⁸NH (wherein R⁷ and R⁸ are the same as above) and triphosgene, (2) a reaction of using amine represented by a general formula R⁷R⁸NH (wherein R⁷ and R⁸ are the same as above) and carbodiimidazole, and (3) a method using an isocyanate compound.

(1) Method using amine and triphosgene

Amine represented by the general formula R^7R^8NH (wherein R^7 and R^8 are the same as above) is reacted with triphosgene, so as to generate carbamoyl chloride represented by a general formula $ClCONR^7R^8$ (wherein R^7 and R^8 are the same as above). Carbamoyl chloride may be isolated. However, since it is generally unstable, it is immediately used in the following step without isolation.

A basic compound and the above amine are added to a methylene chloride solution containing triphosgene, while the solution is cooled and stirred. Thereafter, the mixture is stirred at $0^{\circ}C$ to $30^{\circ}C$ for 30 minutes to 4 hours, so as to generate carbamoyl chloride. The molar ratio of triphosgene to amine is generally between 0.3 : 1 and 1.5 : 1, preferably between 0.3 : 1 and 0.6 : 1, and more preferably between 0.3 : 1 and 0.4 : 1.

Examples of a basic compound used in the reaction between amine and triphosgene include triethylamine, N-ethyldiisopropylamine, and N-methylmorpholine. The molar ratio of a basic compound to triphosgene is generally 3 : 1 or higher, preferably between 3 : 1 and 4.5 : 1, and more preferably between 3 : 1 and 3.3 : 1.

The reaction temperature is generally $0^{\circ}C$ to $60^{\circ}C$, and preferably $0^{\circ}C$ to room temperature ($30^{\circ}C$). The reaction time is generally 30 minutes to 8 hours, preferably 1 to 4 hours, and more preferably 1 to 2

hours.

The thus obtained reaction solution of carbamoyl chloride can be directly used. However, it is more advantageous to eliminate insoluble products by
5 filtration prior to concentration of the filtrate.

Subsequently, the compound (1-A-A1) is dissolved in an appropriate reaction solvent, and the carbamoyl chloride produced above is added thereto, while stirring on ice cooling. Thereafter, copper
10 chloride is further added thereto, and the mixture is stirred at a certain temperature for a certain time, so as to produce the compound (1-D).

Any reaction solvent can be widely used herein, as long as it does not inhibit the reaction.
15 Examples of such a solvent may include aprotic polar solvents such as DMF, DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane,
20 ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

The molar ratio of carbamoyl chloride to the compound (1-A-A1) may be generally between 1 : 1 and
25 5 : 1, preferably between 1 : 1 and 3 : 1, and more preferably between 1 : 1 and 2 : 1.

Moreover, the molar ratio of copper chloride to the compound (1-A-A1) may be generally between 0.1 :

1 and 5 : 1, preferably between 0.5 : 1 and 2 : 1, and more preferably between 0.5 : 1 and 1 : 1.

The reaction temperature is generally 0°C to 60°C, preferably 10°C to 50°C, and more preferably 20°C to 35°C. The reaction time is generally 30 minutes to 48 hours, preferably 1 to 30 hours, and more preferably 2 to 24 hours.

(2) Reaction of using amine and carbodiimidazole

Amine represented by the general formula R^7R^8NH (wherein R^7 and R^8 are the same as above) is dissolved in an appropriate reaction solvent. 1,1'-carbonyldiimidazole is added to the obtained solution, while stirring on ice. The obtained mixture is stirred at a certain temperature for a certain time, so as to obtain an amino carbonylimidazole derivative.

The molar ratio of 1,1'-carbonyldiimidazole to amine is generally between 0.9 : 1 and 2 : 1, preferably between 1 : 1 and 1.5 : 1, and more preferably between 1 : 1 and 1.2 : 1.

Examples of the used solvent may include aprotic polar solvents such as acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

The reaction temperature is generally 0°C to

60°C, and preferably 0°C to room temperature (30°C). The reaction time is generally 30 minutes to 8 hours, preferably 1 to 4 hours, and more preferably 1 to 2 hours.

5 The compound (1-A-A1) is dissolved in an appropriate solvent in advance. Then, the above obtained amino carbonylimidazole derivative is added to the solution, while stirring on ice. Thereafter, copper chloride is further added thereto, and the
10 mixture is stirred at a certain temperature for a certain time, so as to produce the compound (1-D).

Any solvent can be widely used herein as a reaction solvent, as long as it does not inhibit the reaction. Examples of such a solvent may include
15 aprotic polar solvents such as DMF, DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents
20 such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

The molar ratio of the amino carbonyl-imidazole derivative to the compound (1-A-A1) may be
25 generally between 1 : 1 and 5 : 1, preferably between 1 : 1 and 3 : 1, and more preferably between 1 : 1 and 2 : 1.

Moreover, the molar ratio of the copper

chloride to the compound (1-A-A1) may be generally between 0.9 : 1 and 5 : 1, preferably between 1 : 1 and 2 : 1, and more preferably between 1 : 1 and 1.2 : 1.

The reaction temperature is generally 0°C to 60°C, preferably 10°C to 50°C, and more preferably 20°C to 35°C. The reaction time is generally 30 minutes to 48 hours, preferably 1 to 30 hours, and more preferably 1 to 3 hours.

(3) Method using isocyanate

10 The compound (1-A-A1) is dissolved in an appropriate reaction solvent. Then, isocyanate is added to the solution, while stirring on ice. Thereafter, copper chloride is further added thereto, and the mixture is stirred at a certain temperature for a
15 certain time, so as to produce a compound (1-D) in which R^7 or R^8 represents a hydrogen atom.

Any solvent can be widely used herein as a reaction solvent, as long as it does not inhibit the reaction. Examples of such a solvent may include
20 aprotic polar solvents such as DMF, DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents
25 such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

The molar ratio of the isocyanates to the

compound (1-A-A1) may be generally between 1 : 1 and 5 : 1, preferably between 1 : 1 and 3 : 1, and more preferably between 1 : 1 and 2 : 1.

Moreover, the molar ratio of the copper chloride to the compound (1-A-A1) may be generally between 0.9 : 1 and 5 : 1, preferably between 1 : 1 and 2 : 1, and more preferably between 1 : 1 and 1.2 : 1.

The reaction temperature is generally 0°C to 60°C, preferably 10°C to 50°C, and more preferably 20°C to 35°C. The reaction time is generally 30 minutes to 48 hours, preferably 1 to 30 hours, and more preferably 1 to 3 hours.

The reaction mixture obtained by the above method (1), (2) or (3) is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the compound (1-D) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

A compound having a heterocycle containing a nitrogen atom in a molecule thereof and comprising a C1-C6 alkoxycarbonyl group substituted on the nitrogen atom of the above heterocycle selected from among the compounds of the present invention represented by general formula (1) can be converted by deprotection into a compound having a hydrogen atom that is substituted on the nitrogen atom of the corresponding

heterocycle.

According to this method, for example, a starting material to be deprotected is dissolved in an appropriate reaction solvent followed by hydrolysis
5 using acid, so as to obtain a compound of interest.

Any solvent can be widely used herein as a reaction solvent, as long as it does not inhibit the reaction. Examples of such a solvent may include water, alcohol solvents such as methanol or ethanol,
10 aprotic polar solvents such as DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane,
15 dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

Examples of acid include inorganic acids such as hydrochloric acid, bromic acid or hydrobromic acid, and organic acids such as acetic acid, trifluoroacetic
20 acid or trichloroacetic acid. Of these, the use of trifluoroacetic acid is advantageous.

The molar ratio of such acid to the starting material is generally equal to 1 : 1 or higher, and preferably between 2 : 1 and 10 : 1. However, such
25 acid may also be used a large excess amount as a reaction solvent. The reaction temperature is generally room temperature to 100°C, but it may be appropriately adjusted depending on the type of the used acid. When

trifluoroacetic acid is used, it is enough to set at room temperature. The reaction time is generally 1 to 24 hours, and preferably 1 to 12 hours.

The thus obtained reaction mixture is
5 concentrated, and if necessary, acid such as hydrochloric acid is added thereto for crystallization, so that a compound of interest can be isolated in a form of hydrochloride or trifluoroacetate by recrystallization or the like.

10 The deprotected compound of interest can be isolated as described above. Alternatively, a basic compound such as triethylamine is added thereto without isolation, so that the compound of interest is converted into a free compound, which can be used in
15 the following reaction.

For example, the above free base compound of interest is reacted with an acid halide, acid anhydride or mixed acid anhydride, so that the corresponding amide or carbamate can be produced. The reaction of
20 the above free base compound of interest with sulfonyl chloride enables the production of the corresponding sulfon amide. Moreover, the ureation of the above free base compound of interest with amine enables the production of the corresponding urea. Furthermore, the
25 reductive amination of the above free base compound of interest with aldehyde or the alkylation of the same above compound with alkyl halide enables the production of the N-alkylated derivative of the above compound of

interest.

A compound having a heterocycle containing a nitrogen atom in a molecule thereof and comprising a hydrogen atom substituted on the nitrogen atom of the
5 above heterocycle selected from among the compounds of the present invention represented by general formula (1) can be converted by carbamation into a compound having -COOR^{27} (wherein R^{27} is the same as above) substituted on the nitrogen atom of the corresponding
10 heterocycle.

Examples of a method for carbamation include (1) a method using various types of halogenated formates and (2) a method using an active intermediate obtained by reacting alcohol with carbonyldiimidazole.

15 (1) Method using halogenated formate

A starting material is reacted with halogenated formate in a reaction solvent in the presence of a basic compound, so as to produce a compound of interest.

20 Any solvent can be widely used herein as a reaction solvent, as long as it does not inhibit the reaction. Examples of such a solvent may include aprotic polar solvents such as DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene,
25 tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone,

ethyl acetate, and mixed solvents thereof.

Known compounds can be widely used as a basic compound herein. Examples of such a basic compound include inorganic basic compounds such as hydroxide, 5 carbonate or hydrogencarbonate, and organic basic compounds such as acetate.

Specific examples of hydroxide include sodium hydroxide, potassium hydroxide, cesium hydroxide and lithium hydroxide. Specific examples of carbonate 10 include sodium carbonate, potassium carbonate, cesium carbonate and lithium carbonate. Specific examples of hydrogencarbonate include sodium hydrogencarbonate, potassium hydrogencarbonate, cesium hydrogencarbonate and lithium hydrogencarbonate.

15 Specific examples of acetate include sodium acetate and potassium acetate. In addition to these compounds, specific examples of other organic basic compounds include triethylamine, trimethylamine, diisopropylethylamine, pyridine, dimethylaniline, 1- 20 methylpyrrolidine, N-methylmorpholine, DBN, DBU, and DABCO.

The molar ratio of such a basic compound to the starting material may be generally between 1 : 1 and 4 : 1, preferably between 1 : 1 and 1.5 : 1, and 25 more preferably between 1 : 1 and 1.1 : 1.

The molar ratio of such halogenated formate to the starting material may be generally equal to 1 : 1 or higher, preferably between 1 : 1 and 1.5 : 1, and

more preferably between 1 : 1 and 1.1 : 1.

The reaction temperature is generally 0°C to 100°C, preferably 0°C to 60°C, and more preferably 10°C to 30°C. The reaction time is generally 30 minutes to 12 hours, preferably 1 to 6 hours, and more preferably 1 to 2 hours.

(2) Method using active intermediate

Alcohol represented by a general formula $R^{27}OH$ (R^{27} is the same as above) is reacted with 1,1'-carbonyldiimidazole in an appropriate solvent to obtain an active intermediate (the first step), and then the obtained active intermediate is reacted with a starting material (the second step), so that a compound of interest can be produced.

Any solvent can be widely used herein as a reaction solvent, as long as it does not inhibit the reaction. Examples of such a solvent may include aprotic polar solvents such as DMF, DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

The molar ratio of the 1,1'-carbonyldiimidazole to the alcohol represented by the above general formula may be generally equal to 1 : 1 or

higher, preferably between 1 : 1 and 1.5 : 1, and more preferably between 1 : 1 and 1.1 : 1.

In the first step, the reaction temperature is generally 0°C to 100°C, preferably 0°C to 60°C, and
5 more preferably 10°C to 30°C. The reaction time is generally 30 minutes to 12 hours, preferably 1 to 6 hours, and more preferably 1 to 2 hours.

The molar ratio of the active intermediate to the starting material may be generally equal to 1 : 1
10 or higher, preferably between 1 : 1 and 1.5 : 1, and more preferably between 1 : 1 and 1.1 : 1.

In the second step, the reaction temperature is generally 0°C to 100°C, preferably 0°C to 60°C, and more preferably 10°C to 30°C. The reaction time is
15 generally 30 minutes to 12 hours, preferably 1 to 6 hours, and more preferably 1 to 2 hours.

The reaction mixture obtained by the above method (1) or (2) is, for example, cooled, and then its crude reaction product is separated therefrom by an
20 isolation operation such as filtration, concentration or extraction. Thereafter, the carbamate of interest can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

25 A compound having a heterocycle containing a nitrogen atom in a molecule thereof and comprising an $R^{32}R^{33}NCO$ -group (wherein R^{32} and R^{33} are the same as above) substituted on the nitrogen atom of the above

heterocycle selected from among the compounds of the present invention represented by general formula (1) can be produced by the reaction of a compound having a hydrogen atom substituted on the nitrogen atom of the
5 corresponding heterocycle.

For such a urea formation, for example, (1) a method using amine represented by a general formula $R^{32}R^{33}NH$ (wherein R^{32} and R^{33} are the same as above) and triphosgene, (2) a reaction of using amine represented
10 by the general formula $R^{32}R^{33}NH$ (wherein R^{32} and R^{33} are the same as above) and carbodiimidazole, and (3) a method using an isocyanate compound.

These reactions (1), (2) and (3) are carried out, for example, under the same reaction conditions
15 for the reactions with the compound (1-A-A1) as described in (1), (2) and (3) above.

The reaction mixture obtained by the above method (1), (2) or (3) is, for example, cooled, and then its crude reaction product is separated therefrom
20 by an isolation operation such as filtration, concentration or extraction. Thereafter, a compound of interest can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

25 As for the compounds of the present invention represented by general formula (1), a compound having a heterocycle containing a nitrogen atom in a molecule thereof and comprising an R^{38a} -group substituted on the

nitrogen atom of the above heterocycle (wherein R^{38a} represents a C1-C6 alkanoyl group, phenyl C2-C6 alkanoyl group (wherein, on the phenyl ring, at least one type of group selected from a group consisting of

5 halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted), phenoxy C2-C6 alkanoyl group wherein halogen atom may be substituted on the phenyl ring, phenylthio C2-C6

10 alkanoyl group wherein halogen may be substituted on the phenyl ring, benzoyl group (wherein, on the phenyl ring, at least one type of group selected from a group consisting of halogen, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted

15 or unsubstituted C1-C6 alkoxy group, and a C1-C6 alkylamino group may be substituted), 4-biphenyl-carbonyl group, pyridinylcarbonyl group, or phenyl C2-C6 alkenylcarbonyl group wherein halogen atom may be substituted on the phenyl ring), can be produced by

20 reacting a compound comprising a hydrogen atom substituted on the nitrogen atom of the corresponding heterocycle, with carboxylic acid represented by a general formula $R^{38a}OH$ (wherein $R^{38a}OH$ is the same as above).

The above reaction can be carried out under

25 the same conditions for the reaction of a compound (Ea-2) with a compound (18) represented by reaction scheme 19, which will be described later.

The reaction mixture obtained by the above

method is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, a compound of interest can be
5 isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

A compound having a heterocycle containing a nitrogen atom in a molecule thereof and comprising
10 $R^{39a}SO_2$ -substituted on the nitrogen atom of the above heterocycle (wherein R^{39a} represents a phenyl group which may be substituted by at least one group selected from a group consisting of a halogen atom and C1-C6 alkyl groups), selected from the compounds of the
15 present invention represented by general formula (1), can be produced by reacting a compound having a hydrogen atom substituted on the nitrogen atom of the corresponding heterocycle, with sulfonyl halide represented by a general formula $R^{39a}SO_2X_2$ (wherein R^{39a}
20 and X_2 are the same as above).

The above reaction can be carried out under the same conditions for the reaction of the compound (Fd-1) with a compound (15) represented by reaction scheme 18, which will be described later.

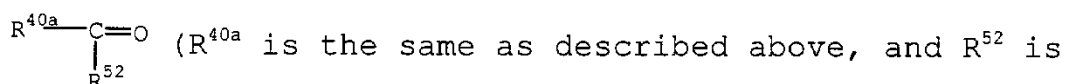
25 The reaction mixture obtained by the above method is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or

extraction. Thereafter, a compound of interest can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

5 As for the compounds of the present invention represented by general formula (1), a compound having a heterocycle containing a nitrogen atom in a molecule thereof and comprising an R^{40a} -CH- R^{52} group substituted on the nitrogen atom of the above heterocycle (wherein
10 R^{52} is the same as described later, and R^{40a} represents a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of halogen atom, a cyano group, a halogen substituted or unsubstituted C1-C6 alkyl group, a cyclohexyl group, an amino group
15 which may have a C1-C6 alkyl group as a substituent, a C1-C6 alkoxycarbonyl group, a phenoxy group, a phenyl C1-C6 alkyl group, a phenyl C2-C6 alkenyl group, a pyridyl group, an imidazolyl group, a halogen substituted or unsubstituted C1-C6 alkoxy group, and a
20 piperidinyl group may be substituted), 4-biphenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of halogen atom, a cyano group, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted
25 C1-C6 alkoxy group, and an amino group which may have a C1-C6 alkyl group as a substituent may be substituted), naphthyl group, furyl group, or thienyl group), can be produced by subjecting a compound comprising a hydrogen

atom substituted on the nitrogen atom of the corresponding heterocycle to a reductive alkylation reaction.

This reductive alkylation reaction is carried out, for example, by reacting a starting material with aldehyde or ketone represented by a general formula

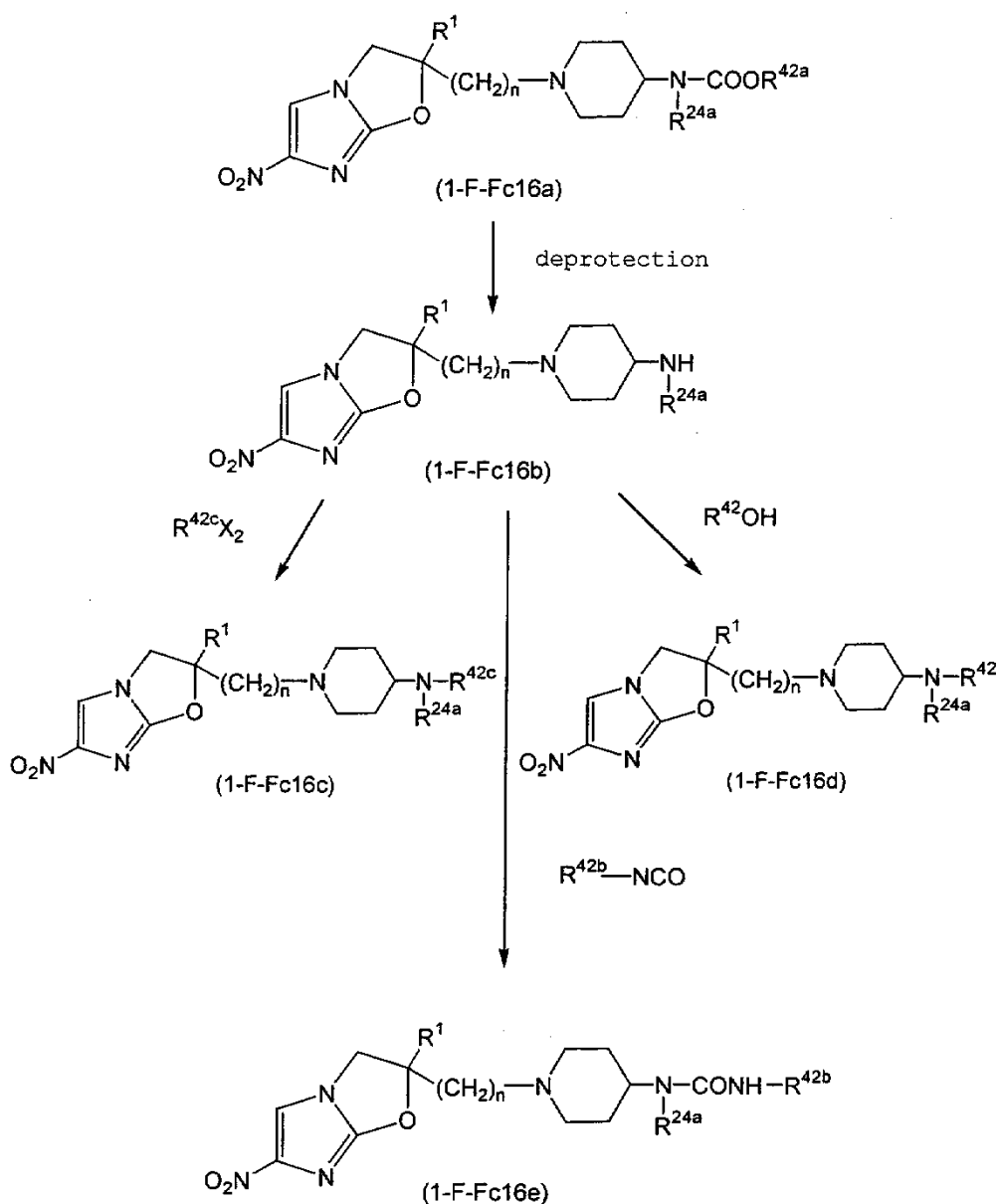


a hydrogen atom or C1-C6 alkyl group) in an appropriate solvent in the presence of the reducing agent.

This reaction can be carried out under the same condition for the reaction of a compound (E-2) with a compound (13) represented by reaction scheme 16, which will be described later.

The reaction mixture obtained by the above described method is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, a compound of interest can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

Reaction scheme 8



wherein R^1 , X_2 and n are the same as above, R^{24a} represents a group represented by each of (Fca1) to (Fca11), R^{42a} represents a C1-C6 alkyl group, R^{42} represents a group represented by (Fca5), (Fca6) or (Fca7), R^{42c} represents a group represented by (Fca2), (Fca3), (Fca4), (Fca8) or (Fca9), and R^{42b} represents a

phenyl group (wherein at least one selected from halogen substituted or unsubstituted C1-C6 alkyl groups may be substituted on the phenyl ring).

The reaction of converting a compound (1-F-Fc16a) into a compound (1-F-Fc16b) can be carried out under the same conditions for the reaction of converting a compound (E-1) into a compound (E-2) represented by reaction scheme 16, which is described later.

The thus obtained reaction mixture is concentrated, and if necessary, acid such as hydrochloric acid is added thereto for crystallization, so that a compound of interest can be isolated in a form of hydrochloride or trifluoroacetate by recrystallization or the like.

A compound (1-F-Fc16c) is produced by reacting the compound (1-F-Fc16b) with $R^{42c}X_2$. This reaction can be carried out under the same condition for the reaction of the compound (Fd-1) with the compound (15) represented by reaction scheme 18, which is described later.

A compound (1-F-Fc16d) is produced by reacting the compound (1-F-Fc16b) with $R^{42c}OH$. This reaction can be carried out under the same condition for the reaction of the compound (Ea-2) with the compound (18) represented by reaction scheme 19, which is described later.

The reaction mixture obtained by the above method is, for example, cooled, and then its crude

reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, a compound of interest can be isolated and purified from the reaction mixture by a
5 common purification operation such as column chromatography or recrystallization.

A compound (1-F-Fc16e) is produced by reacting the compound (1-F-Fc16b) with R^{42b} -NCO. This reaction can be carried out in the presence or absence
10 of, preferably in the absence of, a basic compound, in an appropriate inert solvent or without solvent.

Herein, as a solvent and a basic compound, there can be used the solvent and basic compound as follows.

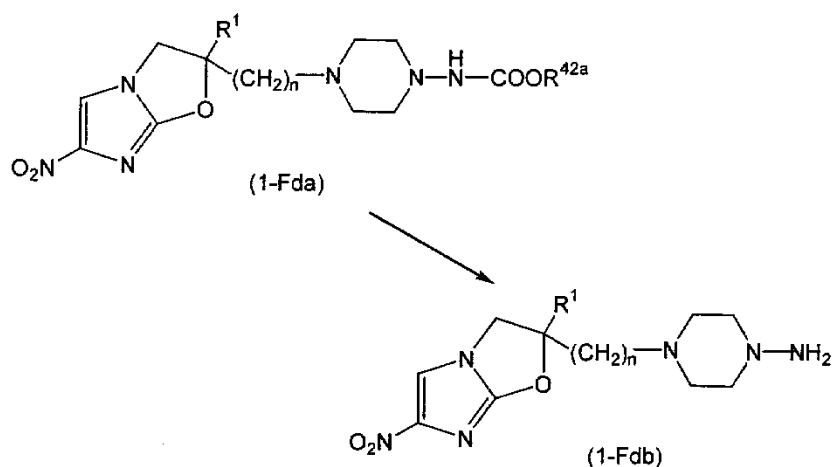
Examples of such a basic compound include: organic
15 bases such as triethylamine, trimethylamine, pyridine, dimethylaniline, N-ethyldiisopropylamine, dimethylaminopyridine, N-methylmorpholine, 1,5-diazabicyclo[4.3.0]nonene-5 (DBN), 1,8-diazabicyclo[5.4.0]undecene-7 (DBU) or 1,4-diazabicyclo[2.2.2]octane (DABCO);

20 inorganic bases including carbonates such as sodium carbonate, potassium carbonate, sodium hydrogen-carbonate or potassium hydrogencarbonate, metal hydroxides such as sodium hydroxide, potassium hydroxide or calcium hydroxide, potassium hydride,
25 sodium hydride, potassium, sodium, sodium amide, and metal alcoholates such as sodium methylate or sodium ethylate. Further, examples of a solvent include halogenated hydrocarbons such as chloroform,

dichloromethane, dichloroethane or carbon tetrachloride, aromatic hydrocarbons such as benzene, toluene or xylene, ethers such as diethyl ether, diisopropyl ether, tetrahydrofuran or dimethoxyethane, 5 esters such as methyl acetate, ethyl acetate or isopropyl acetate, alcohols such as methanol, ethanol, isopropanol, propanol, butanol, 3-methoxy-1-butanol, ethyl cellosolve or methyl cellosolve, acetonitrile, pyridine, acetone, water, aprotic polar solvents such 10 as N,N-dimethylacetamide, N,N-dimethylformamide, dimethylsulfoxide or hexamethylphosphoric acid triamide, and mixed solvents thereof. The molar ratio of the compound R^{42b} -NCO to the compound (1-F-Fc16b) may be generally between 1 : 1 and 5 : 1, and preferably 15 equal to 1 : 1 and 3 : 1. The reaction is carried out generally at 0°C to 200°C, and preferably at room temperature to 150°C, generally for 5 minutes to 30 hours. In the reaction, a boron compound such as boron trifluoride diethyl ether complex, or a halogenated 20 copper compound such as cuprous chloride may be added.

The thus obtained reaction mixture is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, a 25 compound of interest can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

Reaction scheme 9



wherein R^{42a} , R^1 and n are the same as above.

A compound (1-Fdb) is produced by deprotect-
 5 ing a compound (1-Fda). For example, the compound (1-Fda) is dissolved in an appropriate reaction solvent followed by hydrolysis with acid, so as to obtain the compound (1-Fdb).

Any reaction solvent can be widely used
 10 herein, as long as it does not inhibit the reaction. Examples of such a solvent include water, alcohol solvents such as methanol or ethanol, aprotic polar solvents such as DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or
 15 liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

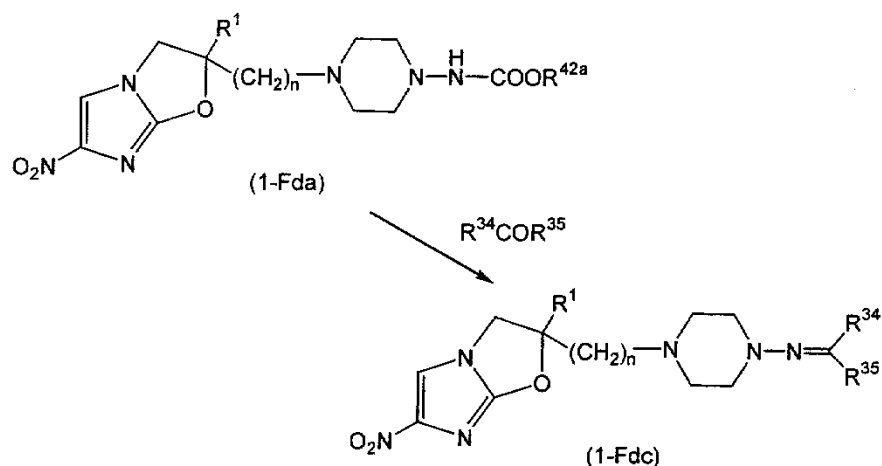
20 Examples of acid include inorganic acids such

as hydrochloric acid, hydrobromic acid or bromic acid, and organic acids such as acetic acid, trifluoroacetic acid or trichloroacetic acid. Of these, trifluoroacetic acid is advantageously used.

5 The molar ratio of such acid to the compound (1-Fda) is generally equal to 1 : 1 or higher, and preferably between 2 : 1 and 10 : 1. However, such acid may also be used a large excess amount as a reaction solvent. The reaction temperature is
10 generally room temperature to 100°C, but it may be appropriately adjusted depending on the type of the used acid. When trifluoroacetic acid is used, it is enough to set at room temperature. The reaction time is generally 1 to 24 hours, and preferably 1 to 12
15 hours.

 The thus obtained reaction mixture is concentrated, and if necessary, acid such as hydrochloric acid is added thereto for crystallization, so that the compound (1-Fdb) can be isolated in a form of
20 hydrochloride or trifluoroacetate by recrystallization or the like.

Reaction scheme 10



wherein R^{42a} , R^1 , n , R^{34} and R^{35} are the same as above.

A compound (1-Fdc) is produced by reacting the compound (1-Fda) with aldehyde or ketone
 5 represented by a general formula $\text{R}^{34}\text{COR}^{35}$ (wherein R^{34} and R^{35} are the same as above).

This reaction is carried out in the presence of acid in an appropriate solvent.

Any reaction solvent can be widely used
 10 herein, as long as it does not inhibit the reaction. Examples of such a solvent include water, alcohol solvents such as methanol or ethanol, aprotic polar solvents such as DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or
 15 liquid paraffin, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and

mixed solvents thereof.

Examples of acid include inorganic acids such as hydrochloric acid, hydrobromic acid or bromic acid, and organic acids such as acetic acid, trifluoroacetic
5 acid or trichloroacetic acid. Of these, trifluoroacetic acid is advantageously used.

The molar ratio of such acid to the compound (1-Fda) is generally 0.5 : 1 or higher, and preferably between 0.5 : 1 and 1.5 : 1. However, such acid may
10 also be used a large excess amount as a reaction solvent.

The molar ratio of aldehyde or ketone to the compound (1-Fda) is generally between 0.9 : 1 and 3 : 1, preferably between 1 : 1 and 1.5 : 1, and more
15 preferably between 1 : 1 and 1.3 : 1.

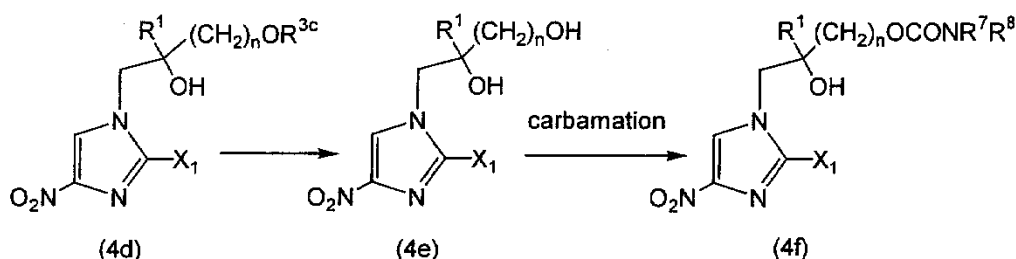
The reaction temperature is generally room temperature to 100°C, but it may be appropriately adjusted depending on the type of the used acid. The reaction time is generally 1 to 12 hours, and prefer-
20 ably 1 to 3 hours.

The thus obtained reaction mixture is concentrated, and if necessary, acid such as hydrochloric acid is added thereto for crystallization, so that the compound (1-Fdc) can be isolated in a form of
25 hydrochloride or trifluoroacetate by recrystallization or the like.

Next, a method for producing a starting material and an intermediate used for production of the

compound of the present invention will be explained.

Reaction scheme 11



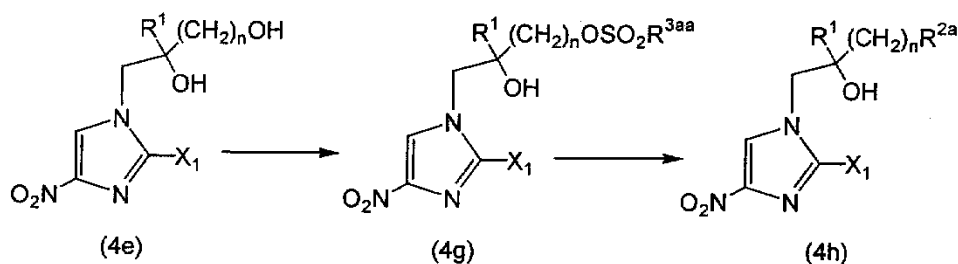
wherein R^1 , R^7 , R^8 , X_1 and n are the same as above, and
 5 R^{3c} represents a C1-C6 alkoxy-C1-C6 alkyl group, a C1-C6 alkanoyl group or a p-nitrobenzoyl group.

A reaction to lead from a compound (4d) into a compound (4e) is carried out, for example, under the same reaction conditions for the reaction to lead from
 10 the compound (1-A-A3) or compound (1-A-A9) into the compound (1-A-A1) as shown in reaction scheme 4. For example, in the case of the compound (4d) in which R^{3c} represents a C1-C6 alkoxy-C1-C6 alkyl group, it may be adequate to carry out the reaction under the same
 15 conditions for the reaction to lead from the compound (1-A-A3) into the compound (1-A-A1). In the case of the compound (4d) in which R^{3c} represents a C1-C6 alkanoyl or p-nitrobenzoyl group, it may be adequate to carry out the reaction under the same conditions for
 20 the reaction to lead from the compound (1-A-A9) into the compound (1-A-A1).

A reaction to lead from a compound (4e) into

a compound (4f) is carried out, for example, under the same reaction conditions for the reaction to lead from the compound (1-A-A1) into the compound (1-D) as shown in reaction scheme 7.

5 Reaction scheme 12

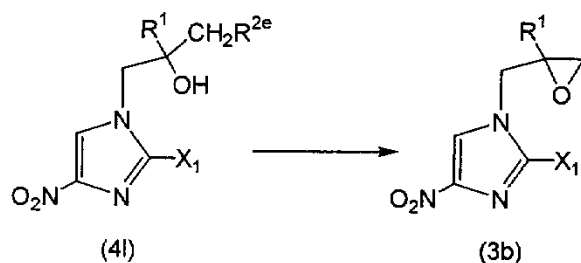


wherein R¹, R^{2a}, R^{3aa}, X₁ and n are the same as above.

A reaction to lead from the compound (4e) into a compound (4g) is carried out, for example, under the same reaction conditions for the reaction to lead from the compound (1-A-A1) into the compound (1-A-A7) as shown in reaction scheme 5.

A reaction to lead from the compound (4g) into a compound (4h) is carried out, for example, under the same reaction conditions for the reaction to lead from the compound (1-A-A7) into the compound (1b) as shown in reaction scheme 6.

Reaction scheme 13



wherein R^1 and X_1 are the same as above, and R^{2e} represents a halogen atom, a C1-C6 alkylsulfonyloxy group or a phenylsulfonyloxy group which may have a C1-
 5 C6 alkyl group as a substituent on the phenyl ring.

A reaction to lead from a compound (4l) into a compound (3b) is carried out in an appropriate solvent in the presence of a basic compound.

Any solvent can be widely used herein, as
 10 long as it does not inhibit the reaction. Examples of such a solvent may include aprotic polar solvents such as DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, halogenated hydrocarbon solvents such as methylene
 15 chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, acetone, ethyl acetate, and mixed solvents thereof.

The same basic compound as used in the
 20 reaction of the compound represented by the above general formula (2) with the compound represented by

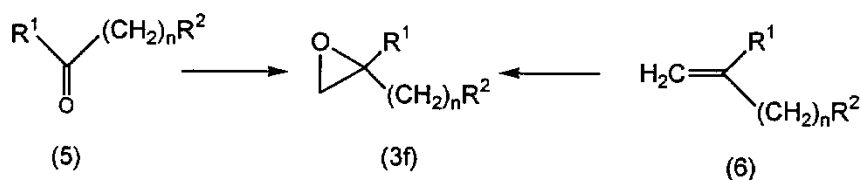
the above general formula (3a) can be used herein.

The molar ratio of such a basic compound to the compound (41) may be generally equal to 1 : 1 or higher, preferably between 1 : 1 and 5 : 1, and more
5 preferably between 1 : 1 and 2 : 1.

The reaction temperature for this reaction is generally 0°C to 150°C, preferably 0°C to 100°C, and more preferably 0°C to 60°C. The reaction time is generally 30 minutes to 48 hours, preferably 1 to 24 hours, and
10 more preferably 1 to 4 hours.

The reaction mixture obtained by the above method is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extrac-
15 tion. Thereafter, the compound (3b) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

Reaction scheme 14



20 wherein R¹, R² and n are the same as above.

A reaction to lead from a compound (5) into a compound (3f) is carried out, for example, by treating the compound (5) with trimethylsulfoxonium iodide in an

appropriate solvent in the presence of a basic compound.

Any solvent can be widely used herein, as long as it does not inhibit the reaction. Examples of such a solvent may include aprotic polar solvents such as DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin or liquid paraffin, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, and mixed solvents thereof.

Examples of a basic compound may include sodium hydride, sodium amide, metal alcoholates such as sodium methoxide, sodium ethoxide or potassium tert-butoxide.

The molar ratio of such a basic compound to the compound (5) may be generally equal to 1 : 1 or higher, preferably between 1 : 1 and 3 : 1, and more preferably between 1 : 1 and 1.5 : 1.

Moreover, the molar ratio of trimethylsulfoxonium iodide to the compound (5) may be generally equal to 1 : 1 or higher, preferably between 1 : 1 and 3 : 1, and more preferably between 1 : 1 and 1.5 : 1.

The reaction temperature for this reaction is generally 0°C to 80°C, preferably 10°C to 50°C, and more preferably 20°C to 35°C. The reaction time is generally 1 to 24 hours, preferably 1 to 12 hours, and more preferably 1 to 4 hours.

The reaction mixture obtained by the above method is, for example, cooled, and then its crude

reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the compound (3f) can be isolated and purified from the reaction mixture by a common
5 purification operation such as column chromatography or recrystallization.

A reaction to lead from a compound (6) into the compound (3f) is carried out, for example, by treating the compound (6) with peroxide in an
10 appropriate solvent.

Any reaction solvent can be widely used herein, as long as it does not inhibit the reaction. Examples of such a solvent may include water, alcohol solvents such as methanol or ethanol, aprotic polar
15 solvents such as DMF, DMSO or acetonitrile, hydrocarbon solvents such as benzene, toluene, xylene, tetralin, liquid paraffin or cyclohexane, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane,
20 dipropyl ether, diethyl ether or diglyme, and mixed solvents thereof.

Examples of peroxide include metachloro-
perbenzoic acid (mCPBA), perbenzoic acid, peracetic acid and hydrogen peroxide.

25 The molar ratio of such peroxide to the compound (6) may be generally between 1 : 1 and 2 : 1, preferably between 1 : 1 and 1.5 : 1, and more preferably between 1 : 1 and 1.3 : 1.

The reaction temperature for this reaction is generally 0°C to 80°C, preferably 0°C to 50°C, and more preferably 20°C to 35°C. The reaction time is generally 10 minutes to 24 hours, preferably 1 to 12 hours, and
5 more preferably 1 to 8 hours.

The reaction mixture obtained by the above method is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extrac-
10 tion. Thereafter, the compound (3f) can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

For example, one type of the compounds (3f)
15 that is optically active is produced from the compound (6) as follows.

Such an optically active compound (3f) can be produced by what is called Sharpless epoxidation. This is to say, the compound can be produced by epoxidation
20 with cumene hydroperoxide or tert-butyl hydroperoxide, in the coexistence of Ti (O-iso-C₃H₇)₄ and optically active C1-C6 alkyl tartarate such as diethyl tartarate (D- or L-form) as catalysts, in the above reaction to lead from the compound (6) into the compound (3f).

25 Any solvent can be widely used herein, as long as it does not inhibit the reaction. Examples of such a solvent may include aprotic polar solvents such as acetonitrile, hydrocarbon solvents such as benzene,

toluene, xylene, tetralin, liquid paraffin or cyclohexane, halogenated hydrocarbon solvents such as methylene chloride, chloroform or dichloroethane, ether solvents such as THF, dioxane, dipropyl ether, diethyl ether or diglyme, and mixed solvents thereof.

The molar ratio of cumene hydroperoxide or tert-butyl hydroperoxide to the compound (6) may be generally between 0.1 : 1 and 2 : 1, preferably between 0.1 : 1 and 1.5 : 1, and more preferably between 0.1 : 1 and 1 : 1.

The molar ratio of Ti (O-iso-C₃H₇)₄ to the compound (6) may be generally between 0.1 : 1 and 2 : 1, preferably between 0.1 : 1 and 1.5 : 1, and more preferably between 0.1 : 1 and 1 : 1.

The molar ratio of optically active C1-C6 tartarates (D- or L-form) to the compound (6) may be generally between 1 : 1 and 2 : 1, preferably between 1 : 1 and 1.5 : 1, and more preferably between 1 : 1 and 1.3 : 1.

The reaction temperature for this reaction is generally -50°C to 30°C, preferably -20°C to 20°C, and more preferably -20°C to 5°C. The reaction time is generally 1 to 48 hours, preferably 4 to 24 hours, and more preferably 4 to 12 hours.

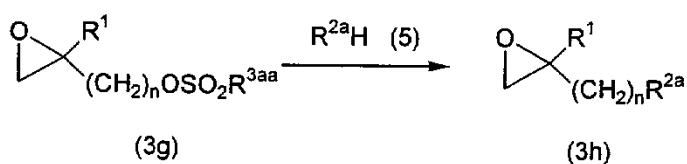
The compound (5) or (6), wherein R¹ and -(CH₂)_nR^{2a}, together with carbon atoms adjacent thereto, are bound with each other via nitrogen atoms to form a piperidine ring, is converted in the same manner as

stated above into a compound (compound (3c)), wherein R^1 and $-(CH_2)_nR^{2a}$, together with carbon atoms adjacent thereto, are bound with each other via nitrogen atoms to form a piperidine ring, in the compound (3f).

5 The reaction mixture obtained by the above method is, for example, cooled, and then its crude reaction product is separated therefrom by an isolation operation such as filtration, concentration or extraction. Thereafter, the optically active compound (3f)
10 can be isolated and purified from the reaction mixture by a common purification operation such as column chromatography or recrystallization.

2,3-Dihydro-6-nitroimidazo[2,1-b]oxazole represented by the compound (1) of the present
15 invention and its intermediates represented by above various reaction formulas include stereoisomers and optical isomers.

Reaction scheme 15

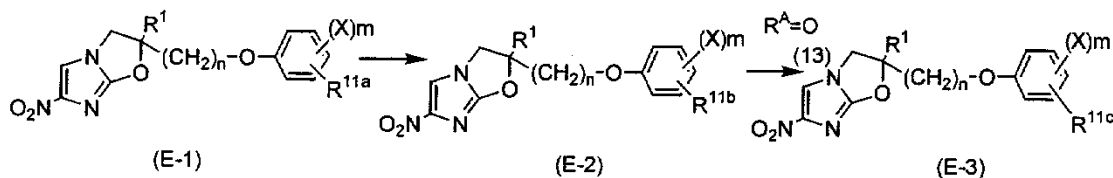


wherein R^{3aa} , R^1 , R^{2a} and n are the same as above.

20 A reaction to lead from a compound (3g) into a compound (3h) is carried out, for example, under the same reaction conditions for the reaction to lead from

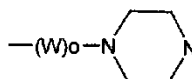
the compound (1-A-A7) into the compound (1b) as shown in reaction scheme 6.

Reaction scheme 16

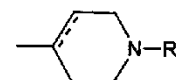


wherein R^1 , X , n and m are the same as above,

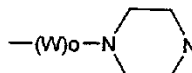
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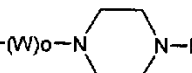
R^{11a} represents the group $-(W)_o-N$  $-R^{15a}$

(wherein W and o are the same as above, R^{15a} represents a C1-C20 alkoxy carbonyl group, with the exception that when W represents the group $C=O$, R^{15a} represents a C1-C6

alkoxy carbonyl group), or the group  $-R^{16a}$

10 (wherein R^{16a} represents a C1-C8 alkoxy carbonyl group),

R^{11b} represents the group $-(W)_o-N$  $-NH$ or group  ,

R^{11c} represents the group $-(W)_o-N$  $-R^{15b}$ or the group  $-R^{16b}$ (wherein each of R^{15b} and R^{16b}

15 represents a C3-C8 cycloalkyl group), and

R^A represents a C3-C8 cycloalkyl group.

The reaction to lead the compound (E-1) into the compound (E-2) can be carried out by the hydrolysis of the compound (E-1).

This hydrolysis reaction can be carried out in an appropriate solvent or without solvent in the presence of acid or a basic compound. Examples of the used solvent may include water, lower alcohols such as
5 methanol, ethanol, isopropanol or tert-butanol, ketones such as acetone or methylethylketone, ethers such as diethyl ether, dioxane, tetrahydrofuran, monoglyme or diglyme, fatty acids such as acetic acid or formic acid, esters such as methyl acetate or ethyl acetate,
10 halogenated hydrocarbons such as chloroform, dichloromethane, dichloroethane or carbon tetrachloride, dimethyl sulfoxide, N,N-dimethylformamide, hexamethylphosphoric acid triamide, and mixed solvents thereof. Examples of acid may include inorganic acids such as
15 hydrochloric acid, sulfuric acid or hydrobromic acid, and organic acids including formic acid, acetic acid, trifluoroacetic acid or sulfonic acids such as p-toluenesulfonic acid. Examples of a basic compound may include carbonates such as sodium carbonate, potassium
20 carbonate, sodium hydrogencarbonate or potassium hydrogencarbonate, and metal hydroxides such as sodium hydroxide, potassium hydroxide, calcium hydroxide or lithium hydroxide. This reaction is carried out generally at 0°C to 200°C, and preferably at 0°C to
25 150°C, generally for 10 minutes to 30 hours.

The molar ratio of acid or basic compound to the compound (E-1) may be at least equal to 1 : 1, and preferably between 1 : 1 and 10 : 1. However, acid may

also be used a much higher amount as a reaction solvent.

After completion of the hydrolysis, the reaction may further be carried out in an appropriate solvent in the presence of a basic compound, generally at 0°C to 100°C, and preferably at room temperature to 70°C, approximately for 1 to 30 minutes, so as to complete the reaction. Herein, as a solvent and a basic compound, there can be used the solvent and basic compound as follows. Examples of such a basic compound include: organic bases such as triethylamine, trimethylamine, pyridine, dimethylaniline, N-ethyl-diisopropylamine, dimethylaminopyridine, N-methylmorpholine, 1,5-diazabicyclo[4.3.0]nonene-5 (DBN), 1,8-diazabicyclo[5.4.0]undecene-7 (DBU) or 1,4-diazabicyclo[2.2.2]octane (DABCO); inorganic bases including carbonates such as sodium carbonate, potassium carbonate, sodium hydrogencarbonate or potassium hydrogencarbonate, metal hydroxides such as sodium hydroxide, potassium hydroxide or calcium hydroxide, potassium hydride, sodium hydride, potassium, sodium, sodium amide, and metal alcoholates such as sodium methylate or sodium ethylate. Further, examples of a solvent include halogenated hydrocarbons such as chloroform, dichloromethane, dichloroethane or carbon tetrachloride, aromatic hydrocarbons such as benzene, toluene or xylene, ethers such as diethyl ether, diisopropyl ether, tetrahydrofuran or dimethoxy-

ethane, esters such as methyl acetate, ethyl acetate or isopropyl acetate, alcohols such as methanol, ethanol, isopropanol, propanol, butanol, 3-methoxy-1-butanol, ethyl cellosolve or methyl cellosolve, acetonitrile, 5 pyridine, acetone, water, aprotic polar solvents such as N,N-dimethylacetamide, N,N-dimethylformamide, dimethylsulfoxide or hexamethylphosphoric acid triamide, and mixed solvents thereof.

The reaction of the compound (E-2) with the 10 compound (13) is carried out without solvent or in an appropriate solvent, in the presence of a reducing agent.

Examples of a solvent used herein may include water, lower alcohols such as methanol, ethanol, 15 isopropanol butanol, tert-butanol or ethylene glycol, acetonitrile, fatty acids such as formic acid, acetic acid or trifluoroacetic acid, ethers such as diethyl ether, tetrahydrofuran, dioxane, monoglyme or diglyme, aromatic hydrocarbons such as benzene, toluene or 20 xylene, halogenated hydrocarbons such as dichloromethane, dichloroethane, chloroform or carbon tetrachloride, and mixed solvents thereof. Examples of a reducing agent include formic acid, fatty acid alkali metal salts such as sodium formate or sodium acetate, 25 and metal hydride reducing agents such as sodium borohydride, sodium cyanoborohydride, sodium triacetyloxy borohydride, lithium aluminum hydride or a mixture thereof, and catalytic hydrogenation reducing

agents such as palladium-black, palladium-carbon, platinum oxide, platinum black or Raney nickel.

When formic acid is used as a reducing agent, the reaction temperature is generally room temperature to 200°C, and preferably 50°C to 150°C. The reaction is carried out for 10 minutes to 10 hours. It may be preferable to use a much higher amount of formic acid to the compound (E-2).

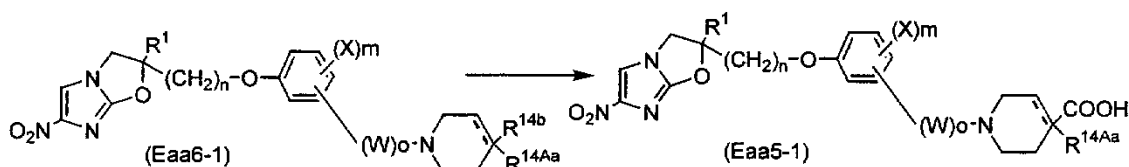
When a hydrogenation reducing agent is used, the reaction temperature is generally -80°C to 100°C, and preferably -80°C to 70°C. The reaction is carried out for 30 minutes to 100 hours. The hydrogenation reducing agent is used to the compound (E-2) at a molar ratio of generally between 1 : 1 and 20 : 1, and preferably between 1 : 1 and 6 : 1. In particular, when lithium aluminum hydride is used as a reducing agent, it is preferable to use, as a solvent, ethers such as diethyl ether, tetrahydrofuran, dioxane, monoglyme or diglyme, or aromatic hydrocarbons such as benzene, toluene or xylene. Moreover, amines such as trimethylamine, triethylamine, N-ethyldiisopropylamine may also be added for the reaction. Furthermore, molecular sieves such as molecular sieves 3A (MS-3A) or molecular sieves 4A (MS-4A) may also be added.

When a catalytic hydrogenation reducing agent is used, the reaction is carried out in hydrogen atmosphere, generally at normal atmospheric pressure to 20 atmospheric pressure, preferably at normal

atmospheric pressure to 10 atmospheric pressure, in the presence of a hydrogen provider such as formic acid, ammonium formate, cyclohexene or hydrated hydrazine, at a temperature of generally -30°C to 100°C, and preferably 0°C to 60°C. The reaction is generally carried out for 1 to 12 hours. Generally 0.1 to 40% by weight, and preferably 1 to 20% by weight of the catalytic hydrogenation reducing agent is used to the compound (E-2).

10 The compound (13) is used to the compound (E-2) at a molar ratio of generally at least equal to 1 : 1, and preferably equal to 1 : 1 or much higher.

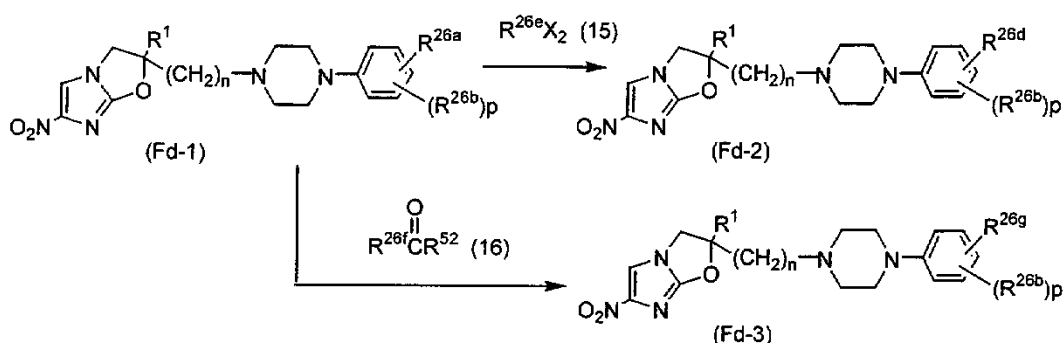
Reaction scheme 17



wherein R¹, X, n, m, W and o are the same as above, R^{14b} represents a C1-C6 alkoxy carbonyl group, and R^{14Aa} is a hydrogen atom, a C1-C6 alkoxy group, a hydroxyl group or a phenyl group (phenyl group may have halogen atoms on the phenyl ring).

The reaction to lead the compound (Eaa 6-1) into the compound (Eaa 5-1) can be carried out under the same conditions for the reaction to lead the compound (E-1) into the compound (E-2) represented by the above reaction scheme 16.

Reaction scheme 18



wherein R¹, n and X₂ are the same as above, R⁵² is a hydrogen atom or C1-C6 alkyl group.

- 5 R^{26b} represents a halogen atom, a cyano group, amino group which may have a C1-C6 alkyl group as a substituent, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted C1-C6 alkoxy group, a C1-C6 alkoxycarbonyl group, a
- 10 carboxyl group, a phenoxy group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be
- 15 substituted as a substituent), an amino C1-C6 alkyl group (wherein, on the amino group, at least one group selected from a group consisting of a C1-C6 alkyl group and a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a
- 20 halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as

a substituent) may be substituted as a substituent), or a phenyl C1-C6 alkoxy group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent),

p represents an integer of 0 to 4,

R^{26a} represents the group $-NHR^{26h}$ (wherein R^{26h} represents a hydrogen atom or a C1-C6 alkyl group), or the group $-W_1-NHR^{26c}$ (wherein W_1 is a C1-C6 alkylene group, R^{26c} represents a hydrogen atom, a C1-C6 alkyl group or a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent))),

R^{26d} represents the group $-N(R^{26e'})R^{26h}$ or the group $-W_1-N(R^{26c})R^{26e}$,

R^{26e} represents a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent) or a C1-C6 alkyl group,

$R^{26e'}$ represents a C1-C6 alkyl group,

R^{26f} represents a C1-C6 alkyl group, and

R^{26g} represents the group $-N(R^{26h})\underline{CH(R^{52})R^{26f}}$ or the group $-W_1-N(R^{26c})\underline{CH(R^{52})R^{26f}}$, provided that the total number of carbon atoms of the underlined portions is not greater than 6.

5 The reaction of the compound (Fd-1) with the compound (15) is generally carried out in an appropriate solvent in the presence or absence of a basic compound.

 Examples of an inert solvent used herein may
 10 include aromatic hydrocarbons such as benzene, toluene or xylene, ethers such as diethyl ether, tetrahydrofuran, dioxane, monoglyme or diglyme, halogenated hydrocarbons such as dichloromethane, dichloroethane, chloroform or carbon tetrachloride, lower alcohols such
 15 as methanol, ethanol, isopropanol, butanol, tert-butanol or ethylene glycol, fatty acids such as acetic acid, esters such as ethyl acetate or methyl acetate, ketones such as acetone or methylethylketone, acetonitrile, pyridine, dimethylsulfoxide, N,N-
 20 dimethylformamide or hexamethylphosphoric acid triamide, and mixed solvents thereof. Examples of a basic compound may include carbonates such as sodium carbonate, potassium carbonate, sodium hydrogen-carbonate, potassium hydrogencarbonate or cesium
 25 carbonate, metal hydroxides such as sodium hydroxide, potassium hydroxide or calcium hydroxide, sodium hydride, potassium hydride, potassium, sodium, sodium amide, metal alcoholates such as sodium methylate,

sodium ethylate, sodium n-butoxide, organic bases such as pyridine, imidazole, N-ethyldiisopropylamine, dimethylaminopyridine, triethylamine, trimethylamine, dimethylaniline, N-methylmorpholine, 1,5-

- 5 diazabicyclo[4.3.0]nonene-5 (DBN), 1,8-diazabicyclo[5.4.0]undecene-7 (DBU) or 1,4-diazabicyclo[2.2.2]-octane (DABCO), and mixtures thereof. The compound (15) may be used to the compound (Fd-1) at a molar ratio of at least equal to 1 : 1, and preferably
- 10 between 1 : 1 and 10 : 1. The basic compound may be used to the compound (Fd-1) at a molar ratio of at least equal to 1 : 1, and preferably between 1 : 1 and 10 : 1. The reaction is carried out generally at 0°C to 200°C, and preferably at 0°C to 150°C. The reaction is
- 15 generally carried out for 5 minutes to 80 hours.

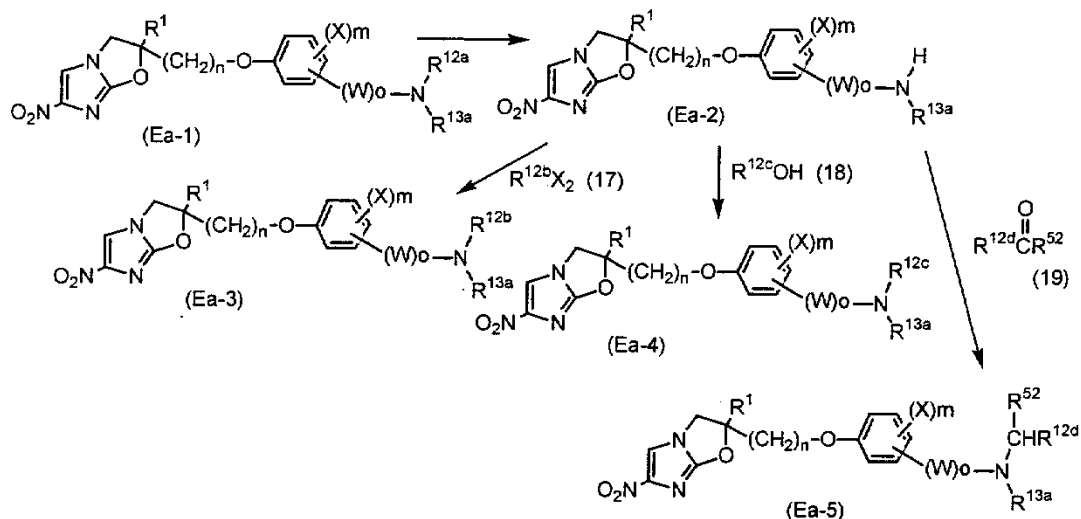
Alkali metal halides such as sodium iodide or potassium iodide may be added to the reaction system, or a phase-transfer catalyst may also be added thereto. Examples of such a phase-transfer catalyst include:

- 20 quaternary ammonium salts, in which a group selected from a group consisting of a linear or branched alkyl group containing 1 to 18 carbon atoms, a phenyl C1-C6 alkyl group, and a phenyl group is substituted, such as tetrabutylammonium chloride, tetrabutylammonium
- 25 bromide, tetrabutylammonium fluoride, tetrabutylammonium iodide, tetrabutylammonium hydroxide, tetrabutylammonium bisulfite, tributylmethylanmonium chloride, tributylbenzylanmonium chloride, tetrapentyl-

ammonium chloride, tetrapentylammonium bromide, tetrahexylammonium chloride, benzyldimethyloctylammonium chloride, methyltrihexylammonium chloride, benzyldimethyloctadecanyleammonium chloride, 5 methyltridecanyleammonium chloride, benzyltripropyleammonium chloride, benzyltriethylammonium chloride, phenyltriethylammonium chloride, tetraethylammonium chloride, or tetramethylammonium chloride; phosphonium salts such as tetrabutylphosphonium chloride, in which 10 a linear or branched alkyl group containing 1 to 18 carbon atoms is substituted; and pyridinium salts such as 1-dodecanylepyridinium chloride, in which a linear or branched alkyl group containing 1 to 18 carbon atoms is substituted. The phase-transfer catalyst may be used 15 to the compound (Fd-1) at a molar ratio of generally between 0.1 : 1 and 1 : 1, and preferably between 0.1 : 1 and 0.5 : 1.

The reaction of the compound (Fd-1) with the compound (16) can be carried out under the same 20 conditions for the above reaction of the compound (E-2) with the compound (13) represented by the above reaction scheme 16.

Reaction scheme 19



wherein R^1 , n , W , X , m , o , R^{52} and X_2 are the same as above,

- 5 R^{12a} represents a C1-C6 alkoxy carbonyl group,
 R^{13a} represents a hydrogen atom, a C1-C6 alkyl group, a C1-C6 alkanoyl group, a C1-C6 alkoxy carbonyl group, a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one of group selected from a
- 10 group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted C1-C6 alkoxy group, and a phenoxy group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen
- 15 atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent) may be substituted, and a C1-C6 alkoxyimino group may

be substituted for the alkyl portion), a phenyl group (wherein, on the phenyl ring, at least one of group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), a benzoyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), a pyridyl group (wherein, on the pyridine ring, at least one of halogen atom may be substituted as a substituent), phenoxy C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or a benzoyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent),

25 R^{12b} represents a C1-C6 alkyl group, a C1-C6 alkoxycarbonyl group, a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a

halogen substituted or unsubstituted C1-C6 alkyl group,
a halogen substituted or unsubstituted C1-C6 alkoxy
group, and a phenoxy group (wherein, on the phenyl
ring, at least one group selected from a group
5 consisting of a halogen atom, a halogen substituted or
unsubstituted C1-C6 alkyl group, and a halogen
substituted or unsubstituted C1-C6 alkoxy group may be
substituted as a substituent), may be substituted as a
substituent, and a C1-C6 alkoxyimino group may be
10 substituted for the alkyl portion), a phenyl group
(wherein, on the phenyl ring, at least one group
selected from a group consisting of a halogen atom, a
halogen substituted or unsubstituted C1-C6 alkyl group,
and a halogen substituted or unsubstituted C1-C6 alkoxy
15 group may be substituted as a substituent), a pyridyl
group (wherein, on the pyridine ring, at least one of
halogen atom may be substituted as a substituent), a
phenoxy C1-C6 alkyl group (wherein, on the phenyl ring,
at least one group selected from a group consisting of
20 a halogen atom, a halogen substituted or unsubstituted
C1-C6 alkyl group, and a halogen substituted or
unsubstituted C1-C6 alkoxy group may be substituted as
a substituent), or a benzoyl C1-C6 alkyl group
(wherein, on the phenyl ring, at least one group
25 selected from a group consisting of a halogen atom, a
halogen substituted or unsubstituted C1-C6 alkyl group,
and a halogen substituted or unsubstituted C1-C6 alkoxy
group may be substituted as a substituent),

R^{12c} represents a C1-C6 alkanoyl group, or a benzoyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent),

R^{12d} represents a hydrogen atom, a C1-C6 alkyl group, a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted C1-C6 alkoxy group, and a phenoxy group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent) may be substituted), a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted C1-C6 alkoxy group, and a phenoxy group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent) may be

substituted), a phenoxy C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a
 5 halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or a benzoyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6
 10 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), and

in the group $-(W)O-N(R^{13a})\underline{CH(R^{52})R^{12d}}$ in general formula (Ea-5), the total number of carbon atoms of the
 15 underlined portion is not greater than 6.

The reaction to lead the compound (Ea-1) into the compound (Ea-2) can be carried out under the same conditions for the reaction to lead the compound (E-1) into the compound (E-2) represented by the above
 20 reaction scheme 16.

The reaction of the compound (Ea-2) with the compound (17) can be carried out under the same conditions for the reaction of the compound (Fd-1) with the compound (15) represented by the above reaction
 25 scheme 18.

The reaction of the compound (Ea-2) with the compound (18) is carried out by reacting the compound (Ea-2) with carboxylic acid of the compound (18) by a

common amide bond formation reaction. Conditions for a known amide bond formation reaction can be easily applied herein. Examples of such an amide bond formation reaction include (a) mixed acid anhydride method, that is, a method of reacting carboxylic acid (18) with alkyl haloformate to obtain a mixed acid anhydride and reacting the mixed acid anhydride with amine (Ea-2), (b) active ester method, that is, a method of converting carboxylic acid (18) into active ester such as phenyl, p-nitrophenyl ester, N-hydroxy succinic acid imide ester or 1-hydroxybenzotriazole ester, or into active amide such as benzoxazoline-2-thione, and then reacting this with amine (Ea-2), (c) carbodiimide method, that is, a method of carrying out the condensation reaction of carboxylic acid (18) with amine (Ea-2) in the presence of an activator such as dicyclohexylcarbodiimide, 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide (WSC) or carbonyldiimidazole, and (d) other methods including a method of converting carboxylic acid (18) into carboxylic anhydride by using a dehydrator such as acetic anhydride and reacting the carboxylic anhydride with amine (Ea-2), a method of reacting ester of carboxylic acid (18) and lower alcohol with amine (Ea-2) at high pressure and high temperature, and a method of reacting acid halide of carboxylic acid (18), i.e., carboxylic acid halide, with amine (Ea-2).

The mixed acid anhydride used in (a) mixed

acid anhydride method as described above is obtained by a common Schotten-Baumann reaction. The mixed acid anhydride is reacted with amine (Ea-2) generally without subjecting to isolation, so as to produce the

5 compound of the present invention represented by general formula (Ea-4). The above Schotten-Baumann reaction is carried out in the presence of a basic compound. Compounds that are commonly used for the Schotten-Baumann reaction can be used herein as basic

10 compounds. Examples of such a basic compound include: organic bases such as triethylamine, trimethylamine, pyridine, dimethylaniline, N-ethyldiisopropylamine, dimethylaminopyridine, N-methylmorpholine, 1,5-diazabicyclo[4.3.0]nonene-5 (DBN), 1,8-

15 diazabicyclo[5.4.0]undecene-7 (DBU) or 1,4-diazabicyclo[2.2.2]octane (DABCO); inorganic bases including carbonates such as sodium carbonate, potassium carbonate, sodium hydrogencarbonate or potassium hydrogencarbonate, metal hydroxides such as

20 sodium hydroxide, potassium hydroxide or calcium hydroxide, potassium hydride, sodium hydride, potassium, sodium, sodium amide, and metal alcoholates such as sodium methylate or sodium ethylate. The reaction is carried out generally at -20°C to 100°C, and

25 preferably at 0°C to 50°C. The reaction time is generally 5 minutes to 10 hours, and preferably 5 minutes to 2 hours. The reaction of the obtained mixed acid anhydride with amine (Ea-2) is carried out

generally at -20°C to 150°C , and preferably at 10°C to 50°C . The reaction time is generally 5 minutes to 10 hours, and preferably 5 minutes to 5 hours. The mixed acid anhydride method is generally carried out in a solvent. Any solvent that is commonly used for the mixed acid anhydride method can be used herein. Examples of such a solvent include halogenated hydrocarbons such as chloroform, dichloromethane, dichloroethane or carbon tetrachloride, aromatic hydrocarbons such as benzene, toluene or xylene, ethers such as diethyl ether, diisopropyl ether, tetrahydrofuran or dimethoxyethane, esters such as methyl acetate, ethyl acetate or isopropyl acetate, aprotic polar solvents such as N,N-dimethylacetamide, N,N-dimethylformamide, dimethylsulfoxide or hexamethylphosphoric acid triamide, and mixed solvents thereof. Examples of alkyl haloformate used for the mixed acid anhydride method include methyl chloroformate, methyl bromoformate, ethyl chloroformate, ethyl bromoformate, and isobutyl chloroformate. The molar ratio among carboxylic acid (18), alkyl haloformate and amine (Ea-2) may be generally equal to 1 : 1. Each of alkyl haloformate and carboxylic acid (18) can also be used to amine (Ea-2) within the molar range between 1 : 1 and 1.5 : 1.

The above method (c) involving the condensation reaction in the presence of the above activator can be carried out in an appropriate solvent in the

presence or absence of a basic compound. As a solvent and a basic compound used herein, any solvent used in the reaction of carboxylic acid halide with amine (Ea-2) described as above in (d) other methods can be used.

5 The molar ratio of the activator to the compound (Ea-2) may be at least equal to 1 : 1, and preferably between 1 : 1 and 5 : 1. When WSC is used as an activator, the reaction advantageously proceeds if 1-hydroxy-benzotriazole is added into the reaction system. The
10 reaction is carried out generally at -20°C to 180°C, and preferably at 0°C to 150°C. The reaction time is generally 5 minutes to 90 hours.

When the method of reacting carboxylic acid halide with amine (Ea-2) is adopted from (d) other
15 methods described above, the reaction is carried out in the presence of a basic compound in an appropriate solvent. Known basic compounds can be widely used herein. For example, any basic compound used in the above Schotten-Baumann reaction can be used. Examples
20 of the used solvent may include alcohols such as methanol, ethanol, isopropanol, propanol, butanol, 3-methoxy-1-butanol, ethyl cellosolve or methyl cellosolve, acetonitrile, pyridine, acetone, water, as well as solvents used for the above mixed acid
25 anhydride method. The molar ratio of amine (Ea-2) to carboxylic acid halide is not particularly limited, but it may be appropriately selected from a wide range. The molar ratio of these compounds may be generally at

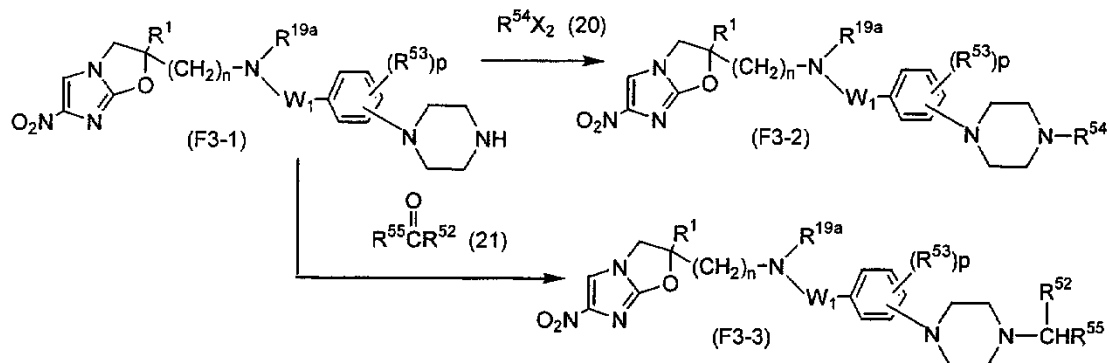
least equal to 1 : 1, and preferably between 1 : 1 and 1 : 5. The reaction is carried out generally at -20°C to 180°C, and preferably at 0°C to 150°C. The reaction time is generally 5 minutes to 50 hours.

- 5 The amide bond formation reaction represented by the above reaction scheme-19 can also be carried out by reacting carboxylic acid (18) with amine (Ea-2) in the presence of a phosphorus condensing agent such as diphenylphosphinic chloride, phenyl-N-phenyl
10 phosphoramidate chloridate, diethyl chlorophosphate, diethyl cyanophosphate, azide diphenyl phosphate, or bis(2-oxo-3-oxazolidinyl)phosphinic chloride.

- This reaction is carried out in the presence of a solvent and a basic compound that are used for the
15 above method of reacting carboxylic acid halide with amine (Ea-2), generally at -20°C to 150°C, and preferably at 0°C to 100°C. The reaction time is generally 5 minutes to 30 hours. Each of the condensing agent and the carboxylic acid (18) is used to amine (Ea-2) at a
20 molar ratio of at least equal to 1 : 1, and preferably between 1 : 1 and 2 : 1.

- The reaction of the compound (Ea-2) with the compound (19) can be carried out under the same conditions for the reaction of the compound (E-2) with
25 the compound (13) represented by the above reaction scheme 16.

Reaction scheme 20



wherein R^1 , n , R^{52} , p , W_1 and X_2 are the same as above,

5 R^{19a} represents a group represented by each of (F1) to (F11).

R^{53} represents a phenoxy group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted C1-C6 alkoxy

10 group, an amino group which may have, as a substituent, a group selected from a group consisting of a C1-C6 alkyl group and a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a

15

20

halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), a piperazinyl group (wherein, on the piperazine ring, at least one group selected from a group consisting of a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group and a halogen substituted or unsubstituted C1-C6 alkoxy group) may be substituted as a substituent or a piperidinyl group (wherein, on the piperidine ring, at least one amino group may be substituted, as a substituent, and on the amino group, at least one group selected from a group consisting of a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted unsubstituted C1-C6 alkoxy group may be substituted as a substituent) and a C1-C6 alkyl group may be substituted),

20 R^{54} represents a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent),

R^{55} represents a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a

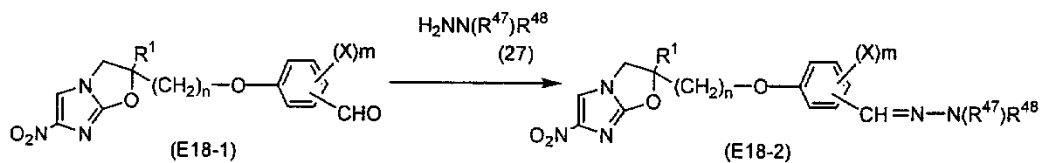
halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or phenyl group (wherein, on the phenyl ring, at least one group
 5 selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), and

the total number of carbon atoms of the group
 10 $\text{CH}(\text{R}^{52})\text{R}^{55}$ in general formula (F3-3) is not greater than 6.

The reaction of the compound (F3-1) with the compound (20) can be carried out under the same conditions for the reaction of the compound (Fd-1) with
 15 the compound (15) represented by the above reaction scheme 18.

The reaction of the compound (F3-1) with the compound (21) can be carried out under the same conditions for the reaction of the compound (E-2) with
 20 the compound (13) represented by the above reaction scheme 16.

Reaction scheme 21



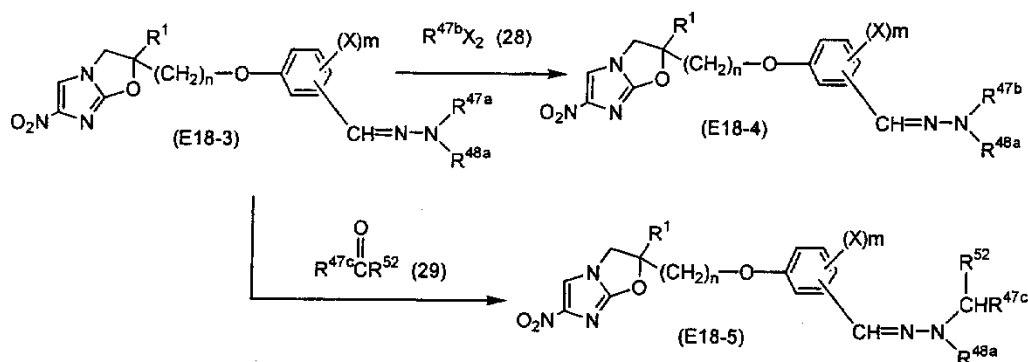
wherein R^1 , n , X , R^{47} , R^{48} and m are the same as above.

The reaction of the compound (27) with the compound (E18-1) can be carried out in an appropriate inert solvent in the presence or absence of a basic compound.

5 Examples of the used basic compound may include inorganic basic compounds such as sodium hydroxide, potassium hydroxide, calcium hydroxide, sodium carbonate or potassium carbonate, fatty acid alkali metal salts such as sodium acetate, and organic
10 bases such as piperidine, triethylamine, trimethylamine, pyridine, dimethylaniline, N-ethyldiisopropylamine, dimethylaminopyridine, N-methylmorpholine, 1,5-diazabicyclo[4.3.0]nonene-5 (DBN), 1,8-diazabicyclo[5.4.0]undecene-7 (DBU) or 1,4-diazabicyclo[2.2.2]-
15 octane (DABCO). Any inert solvent can be used herein, as long as it does not affect the reaction. Examples of such a solvent include water, aromatic hydrocarbons such as benzene, toluene or xylene, ethers such as diethyl ether, tetrahydrofuran, dioxane, monoglyme or
20 diglyme, halogenated hydrocarbons such as dichloromethane, dichloroethane, chloroform or carbon tetrachloride, lower alcohols such as methanol, ethanol, isopropanol, butanol, tert-butanol or ethylene glycol, fatty acids such as acetic acid, esters such as ethyl
25 acetate or methyl acetate, ketones such as acetone or methylethylketone, acetonitrile, pyridine, dimethylsulfoxide, N,N-dimethylformamide, hexamethylphosphoric acid triamide, and mixed solvents thereof. The molar

ratio of the compound (27) to the compound (E18-1) may be generally at least equal to 1 : 1, and preferably between 1 : 1 and 5 : 1. The reaction temperature is generally room temperature to 200°C, and preferably room temperature to 150°C. The reaction time is generally 5 minutes to 30 hours.

Reaction scheme 22



wherein R¹, n, X, m, X₂ and R⁵² are the same as
10 above,

R^{47a} represents a hydrogen atom,

R^{48a} represents a hydrogen atom, a C1-C6 alkyl group, a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a
15 halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or a pyridyl group (wherein, on the pyridine ring, at least one halogen substituted or
20 unsubstituted C1-C6 alkyl group may be substituted as a substituent),

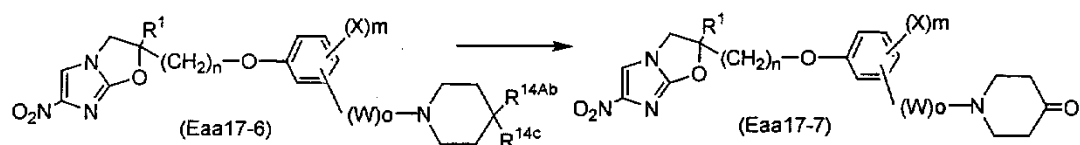
R^{47b} represents a C1-C6 alkyl group; a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent); or a pyridyl group (wherein, on the pyridine ring, at least one halogen substituted or unsubstituted C1-C6 alkyl group may be substituted as a substituent), and

R^{47c} represents a hydrogen atom or a C1-C6 alkyl group, provided that, in the group $-CH=N-N(R^{48a})\underline{CH(R^{52})R^{47c}}$ in general formula (Ea 18-5), the total number of carbon atoms of the underlined portion is not greater than 6.

The reaction of the compound (E18-3) with the compound (28) can be carried out under the same conditions for the reaction of the compound (Fd-1) with the compound (15) represented by the above reaction scheme 18.

The reaction of the compound (E18-3) with the compound (29) can be carried out under the same conditions for the reaction of the compound (E-2) with the compound (13) represented by the above reaction scheme 16.

Reaction scheme 23

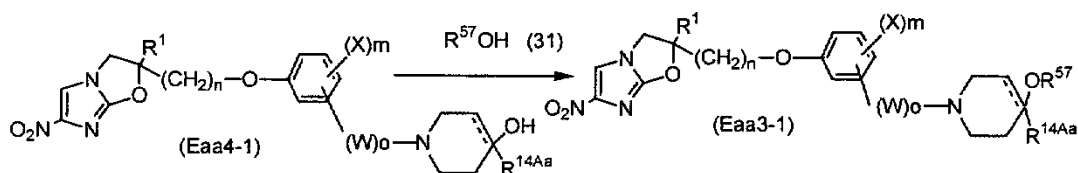


wherein R^1 , n , X , m , W and o are the same as above,

each of R^{14Ab} and R^{14c} represents a C1-C6 alkoxy group.

The reaction to lead the compound (Eaa 17-6) into the compound (Eaa 17-7) can be carried out under the same conditions for the reaction to lead the compound (E-1) into the compound (E-2) represented by the above reaction scheme 16.

Reaction scheme 24



wherein R^1 , n , X , m , W , o and R^{14Aa} are the same as above,

the dotted line on the piperidine ring represents that the bond may be a double bond, and when the dotted line represents a double bond, it means that the hydroxyl group is substituted,

R^{57} represents a phenyl group (wherein, on the

phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, a halogen substituted or unsubstituted C1-C6 alkoxy group, a C1-C4

5 alkylenedioxy group, a C1-C6 alkoxy carbonyl group, a cyano group, a C2-C6 alkenyl group, a nitro group, a phenyl group, an amino group which may have, as a substituent, a group selected from a group consisting of a phenyl group, a C1-C6 alkyl group, a carbomoyl

10 group and a C1-C6 alkanoyl group, a C1-C6 alkanoyl substituted C1-C6 alkyl group, a hydroxyl group, a C1-C6 alkoxy carbonyl substituted C1-C6 alkyl group, phenyl C1-C6 alkyl group, a C1-C6 alkanoyl group, a C1-C6 alkylthio group, a 1,2,4-triazolyl group, an isoxazolyl

15 group, an imidazolyl group, a benzothiazolyl group, a 2H-benzotriazolyl group, a pyrrolyl group, a benzoxazolyl group, a piperazinyl group (wherein, on the piperazine ring, at least one group selected from a group consisting of a C1-C6 alkoxy carbonyl group and a

20 phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one of group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be

25 substituted as a substituent) may be substituted as a substituent), a piperidinyl group (wherein, on the piperidine ring, at least one amino group may be substituted as a substituent, and on the amino group,

at least one group selected from a group consisting of a C1-C6 alkyl group and a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent) may be substituted as a substituent) and a carbamoyl group may be substituted as a substituent).

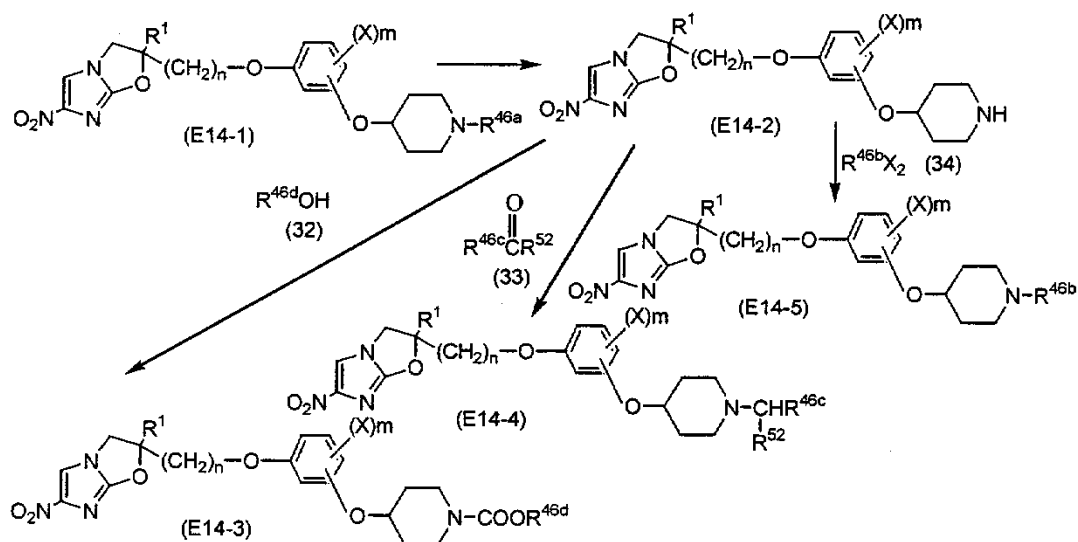
10 The reaction of the compound (Eaa 4-1) with the compound (31) can be carried out in an appropriate solvent in the presence of a condensing agent.

 Herein, there can be used the solvent mentioned below. Examples of such a solvent include
15 halogenated hydrocarbons such as chloroform, dichloromethane, dichloroethane or carbon tetrachloride, aromatic hydrocarbons such as benzene, toluene or xylene, ethers such as diethyl ether, diisopropyl ether, tetrahydrofuran or dimethoxyethane,
20 esters such as methyl acetate, ethyl acetate or isopropyl acetate, alcohols such as methanol, ethanol, isopropanol, propanol, butanol, 3-methoxy-1-butanol, ethyl cellosolve or methyl cellosolve, acetonitrile, pyridine, acetone, water, aprotic polar solvents such
25 as N,N-dimethylacetamide, N,N-dimethylformamide, dimethylsulfoxide or hexamethylphosphoric acid triamide, and mixed solvents thereof.

 Examples of the condensing agent used herein

may include azocarboxylates such as diethyl azodicarboxylate or tert-butyl azodicarboxylate, and phosphorus compound mixtures such as triphenylphosphine or triphenylphosphine polymer supported. This reaction is carried out generally at 0°C to 200°C, and preferably at 0°C to 150°C. The reaction is generally carried out for 1 to 10 hours. The molar ratio of the condensing agent to the compound (Eaa 4-1) may be at least equal to 1 : 1, and preferably between 1 : 1 and 3 : 1. The molar ratio of the compound (31) to the compound (Eaa 4-1) may be at least equal to 1 : 1, and preferably between 1 : 1 and 2 : 1.

Reaction scheme 25



wherein R^1 , n , X , m , X_2 and R^{52} are the same as above,

R^{46a} represents a C1-C6 alkoxy carbonyl group,

R^{46b} represents a phenyl group (wherein, on the

phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), a phenyl C1-C6 alkoxycarbonyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or a C1-C6 alkoxycarbonyl group,

R^{46c} represents a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or a phenyl C1-C6 alkyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), and

R^{46d} represents a phenyl group (wherein, on the phenyl ring, at least one group selected from a group consisting of a halogen atom, a halogen substituted or unsubstituted C1-C6 alkyl group, and a halogen substituted or unsubstituted C1-C6 alkoxy group may be substituted as a substituent), or a C1-C6 alkyl group.

The reaction to lead the compound (E14-1) into the compound (E14-2) can be carried out under the same conditions for the reaction to lead the compound (E-1) into the compound (E-2) represented by the above reaction scheme 16.

The reaction of the compound (E14-2) with the compound (34) can be carried out under the same conditions for the reaction of the compound (Fd-1) with the compound (15) represented by the above reaction scheme 18.

The reaction of the compound (E14-2) with the compound (33) can be carried out under the same conditions for the reaction of the compound (E-2) with the compound (13) represented by the above reaction scheme 16.

The reaction of the compound (E14-2) with the compound (32) can be carried out in an appropriate solvent in the presence of a condensing agent. Any solvent can be used herein, which is used in the method of the reactions of the compound (Eaa 4-1) with the compound (31) represented by the above reaction scheme 24. N,N'-carbonyldiimidazole is an example of the