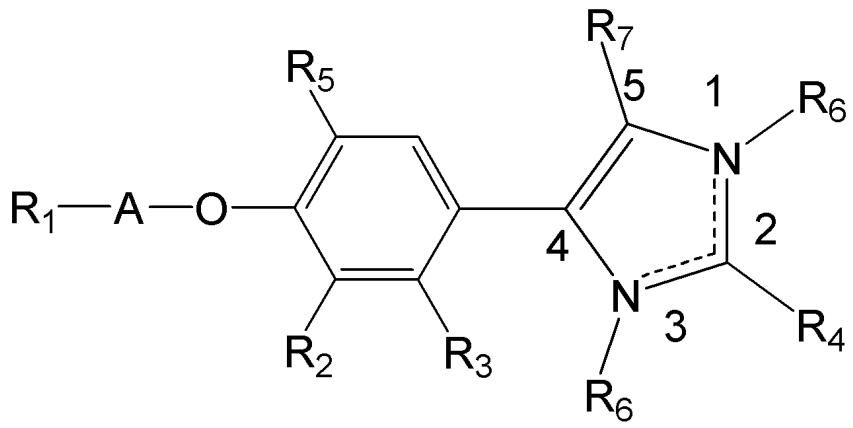
CLAIMS

[Claim 1]

A phenylimidazole compound represented by the following formula (1) or a pharmaceutically acceptable salt thereof



(1)

wherein R_1 is

(1-2) pyrazolyl,

(1-3) pyrimidinyl,

(1-4) pyridyl having one or two substituents each independently selected from the group consisting of halogen, cyano, C_1-C_6 alkyl, C_1-C_6 alkylsulfonyl, and halogen-substituted C_1-C_6 alkyl,

(1-5) oxazolyl having one or more C_1-C_6 alkyl groups,

(1-6) pyrazinyl optionally substituted with at least one group selected from the group consisting of halogen and C_1-C_6 alkyl,

(1-7) phenyl having one or two substituents each independently selected from the group consisting of halogen and halogen-substituted C_1-C_6 alkyl,

(1-8) (pyridine 1-oxide)yl having one or two substituents each independently selected from the group consisting of halogen and halogen-substituted C_1-C_6 alkyl,

(1-9) halogen-substituted thiazolyl,

(1-10) C_1-C_6 alkyl-substituted isoxazolyl,

(1-11) C_3-C_8 cycloalkyl-substituted 1,2,4-oxadiazolyl, or

(1-12) phenyl;

R_2 represents hydrogen or C_1-C_6 alkoxy;

R_3 is

(3-1) hydrogen,

(3-2) C_1-C_6 alkoxy,

(3-3) C_1-C_6 alkoxy C_1-C_6 alkoxy,

(3-4) C_1-C_6 alkyl,

(3-5) halogen,

(3-6) benzyloxy, or

(3-7) hydroxy;

R_4 is

(4-1) pyridyl optionally having at least one substituent selected from the group consisting of halogen, cyano, hydroxy, pyrrolidinyl, C_1-C_6 alkyl, C_1-C_6 alkylthio, C_1-C_6 alkylsulfonyl, C_1-C_6 alkoxy, and halogen-substituted C_1-C_6 alkyl,

(4-2) C_3-C_{10} cycloalkyl optionally having one or two substituents each independently selected from the group consisting of halogen and C_1-C_6 alkyl, or

(4-3) lower alkyl;

R_5 is

(5-1) hydrogen,

(5-2) C_1-C_6 alkyl, or

(5-3) C_1-C_6 alkoxy;

R_6 is

(6-1) hydrogen,

(6-2) C_1-C_6 alkoxy C_1-C_6 alkyl, or

(6-3) C_1-C_6 alkyl optionally substituted with one or more C_3-C_{10} cycloalkyl groups,

wherein R_6 is attached to only one of N at the 1-position and N at the 3-position of the imidazole skeleton, R_6 is attached to N at the 1-position when the bond between N at the 3-position and C at the 2-position of the imidazole skeleton is a double bond, and R_6 is attached to N at the 3-position when the bond between N at the 3-position and C at the 2-position of the imidazole skeleton is a single bond;

R_7 is

(7-1) hydrogen,

(7-2) halogen,

(7-3) C_1-C_6 alkyl,

(7-4) hydroxymethyl,
(7-5) halogen-substituted C_1-C_6 alkyl, or
(7-6) cyano;
A is C_1-C_6 alkylene;
in the imidazole skeleton, the bond between C at the 2-position and N at the 1-position is a single bond when the bond between N at the 3-position and C at the 2-position is a double bond, and the bond between C at the 2-position and N at the 1-position is a double bond when the bond between N at the 3-position and C at the 2-position is a single bond;
with the proviso that the compound represented by formula (1) wherein R_1 is a group of (1-7) or (1-12) and R_4 is a group of (4-3) is excluded.

[Claim 2]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_4 is a group of (4-1).

[Claim 3]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_4 is pyridyl optionally having at least one substituent selected from the group consisting of halogen, cyano, hydroxy, pyrrolidinyl, C_1-C_6 alkyl, C_1-C_6 alkoxy, and halogen-substituted C_1-C_6 alkyl, or a group of (4-2).

[Claim 4]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_1 is a group of (1-4).

[Claim 5]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_3 is hydrogen or C_1-C_6 alkoxy, and R_5 is hydrogen or C_1-C_6 alkoxy.

[Claim 6]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_4 is halogen-substituted pyridyl.

[Claim 7]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_1 is pyridyl having one or two substituents each independently selected from the group consisting of halogen and halogen-substituted C_1-C_6 alkyl.

[Claim 8]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_2 and R_5 each represent hydrogen, and R_3 is C_1-C_6 alkoxy.

[Claim 9]

The phenylimidazole compound according to claim 1 or a pharmaceutically acceptable salt thereof, wherein R_6 is hydrogen, and R_7 is halogen.

[Claim 10]

The phenylimidazole compound according to claim 8 or a pharmaceutically acceptable salt thereof, selected from the following compounds:

• 5-[[4-(5-chloro-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-2-(trifluoromethyl)pyridine

• 2-[[4-(5-chloro-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-3-fluoro-5-(trifluoromethyl)pyridine

• 2-[[4-(5-bromo-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-3-fluoro-5-(trifluoromethyl)pyridine
• 3-chloro-2-[[4-(5-chloro-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-5-(trifluoromethyl)pyridine
• 2-[[4-(5-bromo-2-(6-chloropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-5-(trifluoromethyl)pyridine
• 5-bromo-2-[[4-(4-chloro-2-(6-fluoropyridin-3-yl)-1H-imidazol-5-yl)-3-methoxyphenoxy]methyl]-3-fluoropyridine
• 5-[4-chloro-5-[2-methoxy-4-((6-(trifluoromethyl)pyridin-2-yl)methoxy)phenyl]-1H-imidazol-2-yl]-2-fluoropyridine

[Claim 11]

A pharmaceutical composition comprising the compound according to claim 1 or a pharmaceutically acceptable salt thereof.

[Claim 12]

An LPL activator comprising the compound according to claim 1 or a pharmaceutically acceptable salt thereof.

[Claim 13]

The pharmaceutical composition according to claim 11 for use in the treatment of hyperlipidemia, arteriosclerosis, or obesity.

[Claim 14]

The phenylimidazole compound according to claim 10 or a pharmaceutically acceptable salt thereof, the compound being 5[[4-(5-chloro-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-2-(trifluoromethyl)pyridine.

[Claim 15]

The phenylimidazole compound according to claim 10 or a pharmaceutically acceptable salt thereof, the compound being

2[[4-(5-chloro-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-3 -fluoro-5-(trifluoromethyl)pyridine.

[Claim 16]

The phenylimidazole compound according to claim 10 or a pharmaceutically acceptable salt thereof, the compound being 2[[4-(5-bromo-2-(6-fluoropyridin-3-yl)-1H-imidazol-4-yl)-3-methoxyphenoxy]methyl]-3-fluoro-5-(trifluoromethyl)pyridine.

[Claim 17]

A pharmaceutical composition comprising the compound according to claim 14 or a pharmaceutically acceptable salt thereof.

[Claim 18]

A pharmaceutical composition comprising the compound according to claim 15 or a pharmaceutically acceptable salt thereof.

[Claim 19]

A pharmaceutical composition comprising the compound according to claim 16 or a pharmaceutically acceptable salt thereof.