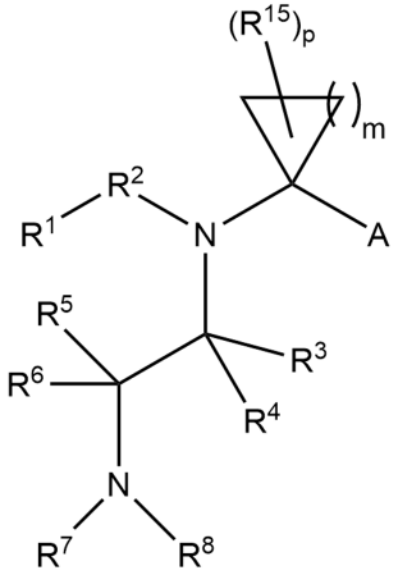
Claims

1. A compound of formula (I):



Formula (I)

wherein

R^1 is $-OC_{1-8}$ alkyl; $-C_{1-8}$ alkyl, optionally substituted with –OH; or H;

R^2 is a bond; -C(O)-; $-S(O)_2-$; or $-C(H)_2-$;

R^3 is H; C_{1-5} alkyl; or a bond;

R^4 is H; C_{1-5} alkyl; or a bond;

R^5 is H; a bond; or C_{1-8} alkyl, wherein one methylene group optionally is replaced by -O-;

R^6 is H; a bond; or C_{1-8} alkyl, wherein one methylene group optionally is replaced by -O-;

R^7 is H; a bond; -OH; or C_{1-8} alkyl, wherein one or more methylene group optionally and individually is replaced by -O- and/or substituted with =O;

R^8 is H; a bond; -OH; or C_{1-8} alkyl, wherein one or more methylene group optionally and individually is replaced by -O- and/or substituted with =O;

R^{15} is individually selected from the group consisting of C_{1-3} alkyl; -OH; -CN; and -F;

anyone of R^3, R^4, R^5, R^6, R^7, and R^8 optionally is linked together to form a ring;

A is a phenyl or a pyridinyl, wherein the phenyl or pyridinyl is optionally substituted with one or more substituents R^{13} individually selected from the group consisting of halogen, $-CX_3$, $-OCX_3$, $-CHX_2$, $-OCHX_2$, $-CH_2X$, $-OCH_2X$, -

CH_2CX_3, OCH_2CX_3, -C_{1-8} alkyl, -OC_{1-8} alkyl, -C_{3-7} cycloalkyl, -OC_{3-7} cycloalkyl, -CN, NO_2, –SO_2CH_3, and -SF_5;

X is halogen;

m is an integer of 1 to 3; and

p is an integer of 0 to 8;

or a pharmaceutically acceptable salt thereof,

with the proviso that p is not 0 when m is 1, and

with the proviso that the compound is not a compound selected from the group consisting of:

(2R)-N-[1-(4-fluorophenyl)cyclobutyl]-α-methyl-2-pyrrolidinemethanamine;

(2S)-N-[1-(4-fluorophenyl)cyclobutyl]-α-methyl-2-pyrrolidinemethanamine;

N1-[1-(3-bromophenyl)cyclobutyl]-1,2-ethanediamine;

N1-[1-(4-fluorophenyl)cyclobutyl]-1,2-ethanediamine;

N1-[1-(4-chlorophenyl)cyclobutyl]-1,2-ethanediamine;

N-(1-phenylcyclobutyl)-3-azetidinamine;

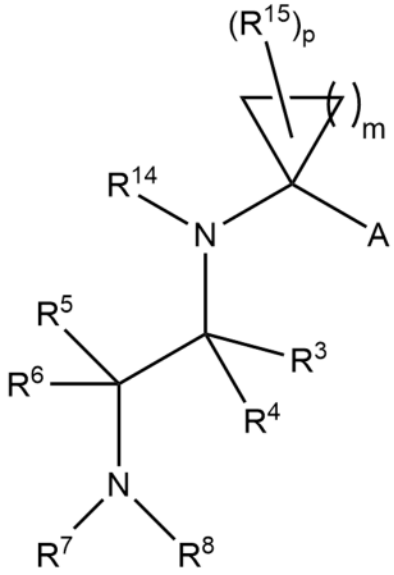
N1-[1-(4-bromophenyl)cyclobutyl]-1,2-ethanediamine;

(5S)-5-[[[1-(4-fluorophenyl)cyclopentyl]amino]methyl]-2-pyrrolidinone;

N1-[1-(4-fluorophenyl)cyclopentyl]-1,2-ethanediamine; and

N1-[1-(3-methylphenyl)cyclopentyl]-1,2-ethanediamine.

2. The compound according to claim 1, wherein the compound is of formula (IV):



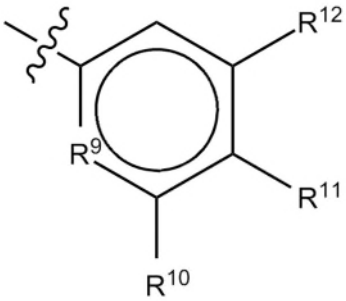
Formula (VI)

wherein

R^{14} is selected from the group consisting of –C(O)-C_{1-8} alkyl; –C(O)-O-C_{1-8} alkyl; -C_{2-8} alkyl; -H and –$S(O)_2$-C_{1-8} alkyl;
R^3 is H, C_{1-5} alkyl, or a bond;
R^4 is H, C_{1-5} alkyl, or a bond;
R^5 is H, a bond, or C_{1-8} alkyl, wherein one methylene group optionally is replaced by -O-;
R^6 is H, a bond, or C_{1-8} alkyl, wherein one methylene group optionally is replaced by -O-;
R^7 is H, a bond,-OH, or C_{1-8} alkyl, wherein one or more methylene group optionally and individually is replaced by -O- and/or substituted with =O;
R^8 is H, a bond, -OH, or C_{1-8} alkyl, wherein one or more methylene group optionally and individually is replaced by -O- and/or substituted with =O;
R^{15} is individually selected from the group consisting of C_{1-3} alkyl, -OH, -CN, and -F;
anyone of R^3, R^4, R^5, R^6, R^7, and R^8 optionally is linked together to form a ring;
A is a phenyl or a pyridinyl, wherein the phenyl or pyridinyl is optionally substituted with one or more substituents R^{13} individually selected from the group consisting of halogen, -CX_3, -OCX_3, -CHX_2, -$OCHX_2$, -CH_2X, -OCH_2X, -CH_2CX_3, OCH_2CX_3, -C_{1-8} alkyl, -OC_{1-8} alkyl, -C_{3-7} cycloalkyl, -OC_{3-7} cycloalkyl, -CN, NO_2, –SO_2CH_3, and -SF_5; and
X is halogen;
m is an integer of 1 to 3; and
p is an integer of 0 to 8;
or a pharmaceutically acceptable salt thereof.

3. The compound according to any one of the preceding claims, wherein –R^1-R^2 is R^{14}, and R^{14} is -C(O)-OC_{1-4} alkyl.

4. The compound according to any one of the preceding claims, wherein A is a moiety of formula (X):



Formula (X)

wherein

R^9 is -C(H)-, -N-, or -C(R^{13})-;

R^{10}, R^{11}, R^{12}, and R^{13} are individually selected from the group consisting of H, halogen, -CX_3, -OCX_3, -CHX_2, -$OCHX_2$, -CH_2X, -OCH_2X, -CH_2CX_3, OCH_2CX_3, -C_{1-8} alkyl, -OC_{1-8} alkyl, -C_{3-7} cycloalkyl, -OC_{3-7} cycloalkyl, -CN, NO_2, –SO_2CH_3, and -SF_5; and

X is halogen.

5. The compound according to claim 4, wherein

   R^9 is -C(H)- or -N-;

   R^{10} is H or halogen;

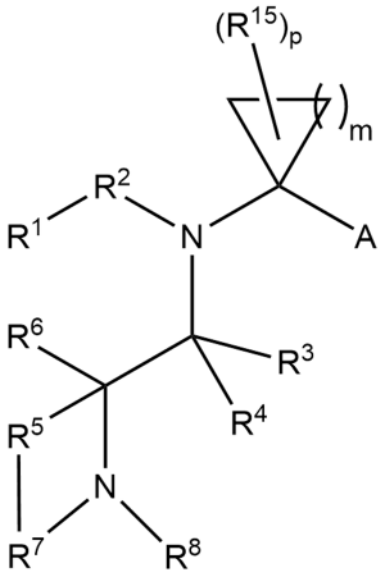
   R^{11} is H or halogen;

   R^{12} is -CX_3, -OCX_3, H, halogen , -C_{1-8} alkyl, or -C_{3-7} cycloalkyl ; and

   X is halogen.

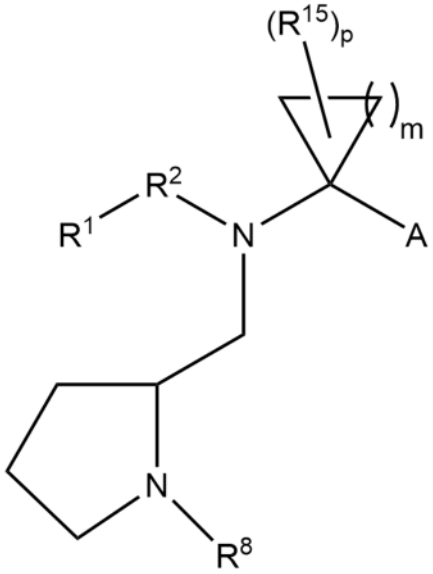
6. The compound according to any one of the preceding claims, wherein R^3 and R^4 are -H, R^5 and R^6 are methyl, and R^7 and R^8 are –H.

7. The compound according to any one of the preceding claims, wherein the compound is of formula (VII):



Formula (VII).

8. The compound according to any one of the preceding claims, wherein the compound is of formula (VIII):



Formula (VIII).

9. The compound according to any one of the preceding claims, wherein m is 2.

10. The compound according to any one of the preceding claims, wherein p is 0.

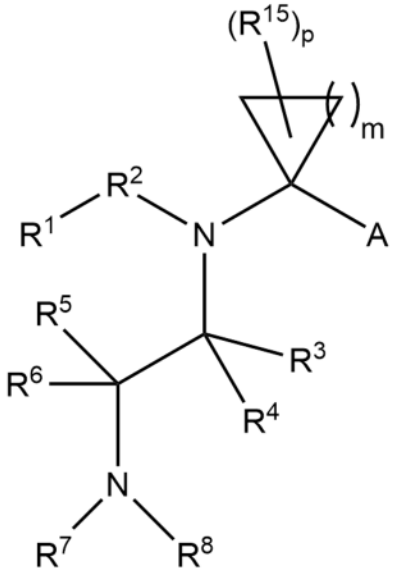
11. The compound according to any one of the preceding claims, wherein R^{12} is -CF_3, -OCF_3, or a halogen.

12. The compound according to any one of the preceding claims, wherein R^9 is -C(H)-, R^{10} is H, R^{11} is F and R^{12} is -CF_3.

13. The compound according to any one of the preceding claims, wherein the compound is selected from the group consisting of:
    a. N-{[(2S)-pyrrolidin-2-yl]methyl}-1-[3-(trifluoromethyl)phenyl]cyclobutan-1-amine;
    b. N-{[(2R)-pyrrolidin-2-yl]methyl}-1-[3-(trifluoromethyl)phenyl]cyclobutan-1-amine;
    c. 2-methyl-N1-{1-[3-(trifluoromethyl)phenyl]cyclobutyl}propane-1,2-diamine;
    d. methyl N-{[(2S)-pyrrolidin-2-yl]methyl}-N-{1-[3-(trifluoromethyl)phenyl]cyclobutyl}carbamate;
    e. methyl N-{[(2R)-pyrrolidin-2-yl]methyl}-N-{1-[3-(trifluoromethyl)phenyl]cyclobutyl}carbamate;
    f. methyl N-(2-amino-2-methylpropyl)-N-{1-[3-(trifluoromethyl)phenyl]cyclobutyl}carbamate;
    g. N1-[1-(3-chlorophenyl)cyclobutyl]-2-methylpropane-1,2-diamine;
    h. methyl N-[1-(3-chlorophenyl)cyclobutyl]-N-{[(2S)-pyrrolidin-2-yl]methyl}carbamate;
    i. methyl N-[1-(3-chlorophenyl)cyclobutyl]-N-{[(2R)-pyrrolidin-2-yl]methyl}carbamate;
    j. N-{[(2S)-pyrrolidin-2-yl]methyl}-1-[3-(trifluoromethoxy)phenyl]cyclobutan-1-amine;
    k. N-{[(2R)-pyrrolidin-2-yl]methyl}-1-[3-(trifluoromethoxy)phenyl]cyclobutan-1-amine;
    l. methyl N-{[(2S)-pyrrolidin-2-yl]methyl}-N-{1-[3-(trifluoromethoxy)phenyl]cyclobutyl}carbamate;
    m. methyl N-{[(2R)-pyrrolidin-2-yl]methyl}-N-{1-[3-(trifluoromethoxy)phenyl]cyclobutyl}carbamate;
    n. methyl N-(2-amino-2-methylpropyl)-N-{1-[3-(trifluoromethoxy)phenyl]cyclobutyl}carbamate;

o. 1-[4-fluoro-3-(trifluoromethyl)phenyl]-N-{[(2S)-pyrrolidin-2-yl]methyl}cyclobutan-1-amine;
p. 1-[4-fluoro-3-(trifluoromethyl)phenyl]-N-{[(2R)-pyrrolidin-2-yl]methyl}cyclobutan-1-amine;
q. N1-{1-[4-fluoro-3-(trifluoromethyl)phenyl]cyclobutyl}-2-methylpropane-1,2-diamine;
r. methyl N-{1-[4-fluoro-3-(trifluoromethyl)phenyl]cyclobutyl}-N-{[(2S)-pyrrolidin-2-yl]methyl}carbamate;
s. methyl N-{1-[4-fluoro-3-(trifluoromethyl)phenyl]cyclobutyl}-N-{[(2R)-pyrrolidin-2-yl]methyl}carbamate;
t. methyl N-(2-amino-2-methylpropyl)-N-{1-[4-fluoro-3-(trifluoromethyl)phenyl]cyclobutyl}carbamate;
u. 1-[3-fluoro-5-(trifluoromethyl)phenyl]-N-{[(2R)-pyrrolidin-2-yl]methyl}cyclobutan-1-amine;
v. methyl N-{1-[3-fluoro-5-(trifluoromethyl)phenyl]cyclobutyl}-N-{[(2S)-pyrrolidin-2-yl]methyl}carbamate;
w. methyl N-{1-[3-fluoro-5-(trifluoromethyl)phenyl]cyclobutyl}-N-{[(2R)-pyrrolidin-2-yl]methyl}carbamate;
x. methyl N-(2-amino-2-methylpropyl)-N-{1-[3-fluoro-5-(trifluoromethyl)phenyl]cyclobutyl}carbamate;
y. methyl N-{1-[2-fluoro-5-(trifluoromethyl)phenyl]cyclobutyl}-N-{[(2S)-pyrrolidin-2-yl]methyl}carbamate;
z. methyl N-[1-(5-chloro-2-fluorophenyl)cyclobutyl]-N-{[(2S)-pyrrolidin-2-yl]methyl}carbamate;
aa. methyl N-(2-amino-2-methylpropyl)-N-[1-(5-chloro-2-fluorophenyl)cyclobutyl]carbamate;
bb. 1-(3-cyclopropyl-4-fluorophenyl)-N-{[(2R)-pyrrolidin-2-yl]methyl}cyclobutan-1-amine; and
cc. 1-(3-cyclopropyl-4-fluorophenyl)-N-{[(2S)-pyrrolidin-2-yl]methyl}cyclobutan-1-amine.

14. Use of a compound of formula (I):



Formula (I)

wherein

R^1 is $-OC_{1-8}$ alkyl, $-C_{1-8}$ alkyl, optionally substituted with –OH, or H;

R^2 is a bond, -C(O)-, $-S(O)_2-$, or $-C(H)_2-$;

R^3 is H, C_{1-5} alkyl, or a bond;

R^4 is H, C_{1-5} alkyl, or a bond;

R^5 is H, a bond, or C_{1-8} alkyl, wherein one methylene group optionally is replaced by -O-;

R^6 is H, a bond, or C_{1-8} alkyl, wherein one methylene group optionally is replaced by -O-;

R^7 is H, a bond,-OH, or C_{1-8} alkyl, wherein one or more methylene group optionally and individually is replaced by -O- and/or substituted with =O;

R^8 is H, a bond, -OH, or C_{1-8} alkyl, wherein one or more methylene group optionally and individually is replaced by -O- and/or substituted with =O;

R^{15} is individually selected from the group consisting of C_{1-3} alkyl, -OH, -CN, and -F;

anyone of R^3, R^4, R^5, R^6, R^7, and R^8 optionally is linked together to form a ring;

A is a phenyl or a pyridinyl, wherein the phenyl or pyridinyl is optionally substituted with one or more substituents R^{13} individually selected from the group consisting of halogen, $-CX_3$, $-OCX_3$, $-CHX_2$, $-OCHX_2$, $-CH_2X$, $-OCH_2X$, -

CH_2CX_3, OCH_2CX_3, -C_{1-8} alkyl, -OC_{1-8} alkyl, -C_{3-7} cycloalkyl, -OC_{3-7} cycloalkyl, -CN, NO_2, –SO_2CH_3, and -SF_5;

X is halogen;

m is an integer of 1 to 4; and

p is an integer of 0 to 10;

or a pharmaceutically acceptable salt thereof,

with the proviso that p is not 0 when m is 1,

or the compound according to any one of claims 1 to 13 for the manufacture of a medicament for the treatment of inflammatory bowel disease (IBD), such as ulcerative colitis or Crohn’s disease, hereditary xerocytosis and/or acute respiratory distress syndrome (ARDS).