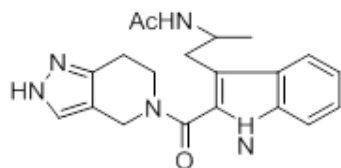
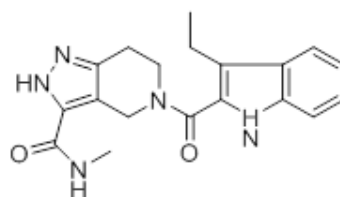


[0004] [Chemical Formula 1]



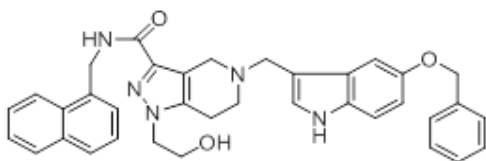
RN 1638421-28-9



RN 1269202-37-0

[0005] Further, Patent Document 4 describes the following pyrazolopyridine derivative as a compound that is useful in the prevention/therapy of sleeping sickness, leishmaniasis or the like caused by eukaryote: such as blastocritidia (e.g. Trypanosomatidae) parasitizing the patient.

[0006] [Chemical Formula 2]



CITATION LIST

PATENT LITERATURE

[0007] Patent Document 1: WO 2012/080471

Patent Document 2: WO 2009/111700

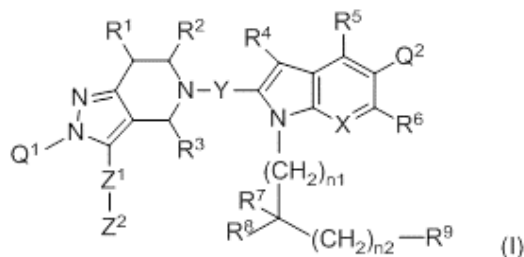
Patent Document 3: WO 2010/114824

Patent Document 4: WO 2016/038045

SUMMARY

[0007a] In one aspect of the present disclosure, there is provided a compound represented by Formula (I):

[Chemical Formula 1]



wherein, X is $-N=$ or $-CR^a=$; R^a is selected from a hydrogen atom, a halogen atom, and C_{1-6} alkyl;

Y is selected from $-C(=O)-$, $-CHR-$, and $-S(=O)_2-$; R is a hydrogen atom or C_{1-6} alkyl;

Q^1 is C_{6-10} aryl or 5 to 10 membered heteroaryl, wherein C_{6-10} aryl and 5 to 10 membered heteroaryl are optionally substituted with one to five substituents independently selected from a halogen atom, C_{1-6} alkyl (wherein C_{1-6} alkyl is optionally substituted with one or more halogen atoms), and C_{1-6} alkoxy;

Q^2 is 3 to 12 membered heterocyclyl or 5 to 10 membered heteroaryl, wherein 3 to 12 membered heterocyclyl and 5 to 10 membered heteroaryl are optionally substituted with one to three substituents independently selected from a halogen atom, C_{1-6} alkyl (wherein C_{1-6} alkyl is optionally substituted with one or more halogen atoms), C_{1-6} alkoxy, and $-NR^{Qa}R^{Qb}$, and two C_{1-6} alkyl groups together with a carbon atom to which they are attached may form C_{3-8} carbocyclic ring; and R^{Qa} and R^{Qb} are independently selected from a hydrogen atom, C_{1-6} alkyl, and $(C_{1-6} \text{ alkyl})\text{carbonyl}$;

R^1 , R^2 and R^3 are each independently selected from a hydrogen atom and C_{1-6} alkyl (wherein, C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom, C_{1-6} alkoxy, and hydroxy);

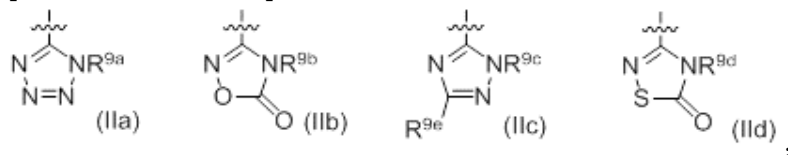
R^4 , R^5 and R^6 are independently selected from a hydrogen atom, a halogen atom, and C_{1-6} alkyl;

R^7 and R^8 are independently a hydrogen atom or C_{1-6} alkyl, wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom and C_{3-15} cycloalkyl, or R^7 and R^8 together with a carbon atom to which they are attached may form C_{3-15} cycloalkane ring, wherein C_{3-15} cycloalkane ring formed by R^7 and R^8 together is optionally substituted with one to three C_{1-6} alkyl, wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom, hydroxy, $-NR^{7a}R^{7b}$, C_{1-6} alkoxy, and 3 to 12 membered heterocyclyl, and R^{7a} and R^{7b} are independently selected from a hydrogen atom, C_{1-6} alkyl, and $(C_{1-6} \text{ alkyl})\text{carbonyl}$;

n_1 is an integer of 0 to 3; n_2 is an integer of 0 to 5;

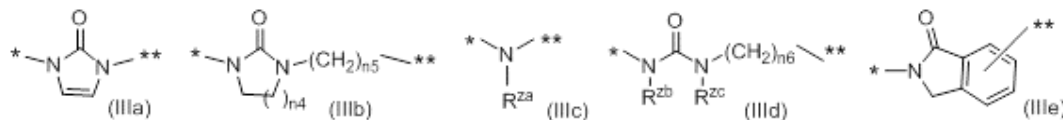
R^9 is selected from a group represented by Formula (IIa), (IIb), (IIc), (II d):

[Chemical Formula 2]



$-\text{CO}_2R^{9f}$, and $-\text{C}(=\text{O})-\text{NR}^{9g}R^{9h}$, and R^{9a} , R^{9b} , R^{9c} , R^{9d} , and R^{9e} are each independently selected from a hydrogen atom, C_{1-6} alkyl (wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom and C_{1-6} alkoxy), and $(C_{1-6} \text{ alkyl})\text{carbonyl}$; R^{9e} is a hydrogen atom, or C_{1-6} alkyl that is optionally substituted with one or more halogen atoms; R^{9f} is a hydrogen atom or C_{1-6} alkyl; R^{9h} is a hydrogen atom, C_{1-6} alkyl, $(C_{1-6} \text{ alkyl})\text{carbonyl}$, cyano, or $-\text{S}(=\text{O})_{n_3}-R^{9i}$; n_3 is an integer of 0 to 2; and R^{9i} is C_{1-6} alkyl; Z^1 is selected from a group represented by Formula (IIIa), (IIIb), (IIIc), (IIId), and (IIIe):

[Chemical Formula 3]



wherein R^{Za} is selected from a hydrogen atom, C_{1-6} alkyl, and $(C_{1-6} \text{ alkyl})\text{carbonyl}$; R^{Zb} and R^{Zc} are independently a hydrogen atom or C_{1-6} alkyl; n_4 is an integer of 1 to 3; n_5 and n_6 are independently an integer of 0 to 10 (* represents a binding position with a pyrazolopyridine structure, and ** represents a binding position with Z^2);

Z^2 is selected from C_{1-6} alkyl, C_{3-15} cycloalkyl, 3 to 12 membered heterocyclyl, C_{6-10} aryl and 5 to 10 membered heteroaryl, wherein C_{3-15} cycloalkyl, 3 to 12 membered heterocyclyl, C_{6-10} aryl, and 5 to 10 membered heteroaryl are optionally substituted with one to five substituents independently selected from Group A:

Group A: a) oxo,

b) a halogen atom,

c) cyano,

d) $-NR^{zd}R^{ze}$; wherein R^{zd} and R^{ze} are independently selected from a hydrogen atom, C_{1-6} alkyl and $(C_{1-6} \text{ alkyl})\text{carbonyl}$, wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from hydroxy, a halogen atom and C_{1-6} alkoxy,

e) $-C(=O)-NR^{zf}R^{zg}$; wherein R^{zf} and R^{zg} are independently selected from a hydrogen atom, C_{1-6} alkyl and $(C_{1-6} \text{ alkyl})\text{carbonyl}$, wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from hydroxy, a halogen atom and C_{1-6} alkoxy,

f) $-S(=O)_{n7}-R^{zh}$; wherein $n7$ is an integer of 0 to 2; and R^{zh} is a hydrogen atom or C_{1-6} alkyl,

g) C_{1-6} alkyl; wherein C_{1-6} alkyl is optionally substituted with one or more substituent independently selected from a halogen atom, hydroxy, $-NR^{zi}R^{zj}$, C_{1-6} alkoxy, and 3 to 12 membered heterocyclyl, wherein R^{zi} and R^{zj} are independently a hydrogen atom or C_{1-6} alkyl, and wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from hydroxy, C_{1-6} alkyl and 3 to 12 membered heterocyclyl,

h) C_{1-6} alkoxy; wherein C_{1-6} alkoxy is optionally substituted with one or more substituent independently selected from hydroxy, a halogen atom, and C_{1-6} alkoxy,

i) 3 to 12 membered heterocyclyl; wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from C_{1-6} alkyl and $(C_{1-6} \text{ alkyl})\text{carbonyl}$,

j) C_{6-10} aryl; wherein C_{6-10} aryl is optionally substituted with one or more $(C_{1-6} \text{ alkyl})\text{carbonyl}$, and

k) 5 to 10 membered heteroaryl; wherein 5 to 10 membered heteroaryl is optionally substituted with one or more substituents independently selected from C₁₋₆ alkyl, C₁₋₆ alkoxy, -NR^{zk}R^{zl}, and 3 to 12 membered heterocyclyl, wherein R^{zk} and R^{zl} are independently selected from a hydrogen atom, C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl, and wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl;

a salt thereof, or a solvate of either the compound or a salt of the compound.[0007b] In another aspect of the present disclosure, there is provided a pharmaceutical composition comprising the compound disclosed herein, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

[0007c] In a further aspect of the present disclosure, there is provided a use of a preventive agent or a therapeutic agent in the manufacture of a medicament for the prevention or treatment of non-insulin-dependent diabetes mellitus (Type 2 diabetes), hyperglycemia, impaired glucose tolerance, insulin dependent diabetes mellitus (Type 1 diabetes), diabetic complication, obesity, hypertension, hyperlipidemia, arteriosclerosis, coronary heart disease, brain infarction, non-alcoholic steatohepatitis, Parkinson's disease, or dementia, wherein the preventative agent or the therapeutic agent comprises the compound disclosed herein, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

[0007d] In another aspect of the present disclosure, there is provided a use of a preventive agent or a therapeutic agent in the manufacture of a medicament for the prevention or treatment of non-insulin-dependent diabetes mellitus (Type 2 diabetes) or obesity, wherein the preventative agent or the therapeutic agent comprises the compound disclosed herein, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

[0007e] In a further aspect of the present disclosure, there is provided a preventive agent or a therapeutic agent for use in treating non-insulin-dependent diabetes mellitus (Type 2 diabetes), hyperglycemia, impaired glucose tolerance, insulin dependent diabetes mellitus (Type 1 diabetes), diabetic complication, obesity, hypertension, hyperlipidemia, arteriosclerosis, coronary heart disease, brain infarction, non-alcoholic steatohepatitis, Parkinson's disease, or dementia, wherein the preventative agent or the therapeutic agent comprises the compound disclosed herein, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

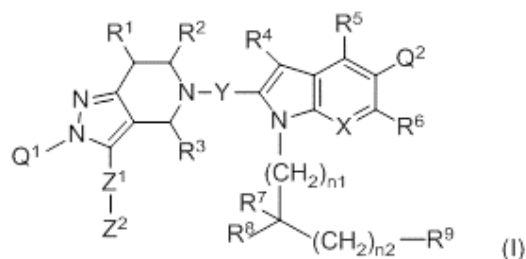
TECHNICAL PROBLEM

[0008] The problem to be solved by the present invention is to provide a compound which is a GLP-1 receptor agonist having the same effect as GLP-1 peptide that may be non-invasively administered and has an improved activity, metabolic stability and bioavailability, a salt thereof, or a solvate of either the compound or a salt of the compound, and also to provide a preventative agent or a therapeutic agent for non-insulin-dependent diabetes mellitus (Type 2 diabetes) or obesity comprising such a compound, salt or solvate as an

CLAIMS

1. A compound represented by Formula (I):

[Chemical Formula 1]



wherein, X is $-N=$ or $-CR^a=$; R^a is selected from a hydrogen atom, a halogen atom, and C_{1-6} alkyl;

Y is selected from $-C(=O)-$, $-CHR-$, and $-S(=O)_2-$; R is a hydrogen atom or C_{1-6} alkyl;

Q^1 is C_{6-10} aryl or 5 to 10 membered heteroaryl, wherein C_{6-10} aryl and 5 to 10 membered heteroaryl are optionally substituted with one to five substituents independently selected from a halogen atom, C_{1-6} alkyl (wherein C_{1-6} alkyl is optionally substituted with one or more halogen atoms), and C_{1-6} alkoxy;

Q^2 is 3 to 12 membered heterocyclyl or 5 to 10 membered heteroaryl, wherein 3 to 12 membered heterocyclyl and 5 to 10 membered heteroaryl are optionally substituted with one to three substituents independently selected from a halogen atom, C_{1-6} alkyl (wherein C_{1-6} alkyl is optionally substituted with one or more halogen atoms), C_{1-6} alkoxy, and $-NR^{Qa}R^{Qb}$, and two C_{1-6} alkyl groups together with a carbon atom to which they are attached may form C_{3-8} carbocyclic ring; and R^{Qa} and R^{Qb} are independently selected from a hydrogen atom, C_{1-6} alkyl, and $(C_{1-6} \text{ alkyl})\text{carbonyl}$;

R^1 , R^2 and R^3 are each independently selected from a hydrogen atom and C_{1-6} alkyl (wherein, C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom, C_{1-6} alkoxy, and hydroxy);

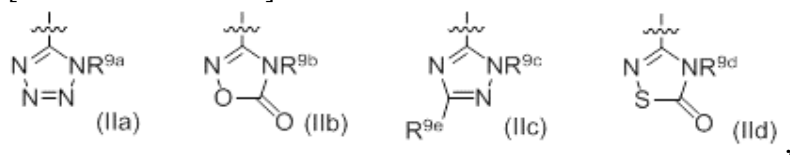
R^4 , R^5 and R^6 are independently selected from a hydrogen atom, a halogen atom, and C_{1-6} alkyl;

R^7 and R^8 are independently a hydrogen atom or C_{1-6} alkyl, wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom and C_{3-15} cycloalkyl, or R^7 and R^8 together with a carbon atom to which they are attached may form C_{3-15} cycloalkane ring, wherein C_{3-15} cycloalkane ring formed by R^7 and R^8 together is optionally substituted with one to three C_{1-6} alkyl, wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom, hydroxy, $-NR^{7a}R^{7b}$, C_{1-6} alkoxy, and 3 to 12 membered heterocyclyl, and R^{7a} and R^{7b} are independently selected from a hydrogen atom, C_{1-6} alkyl, and $(C_{1-6} \text{ alkyl})\text{carbonyl}$;

n_1 is an integer of 0 to 3; n_2 is an integer of 0 to 5;

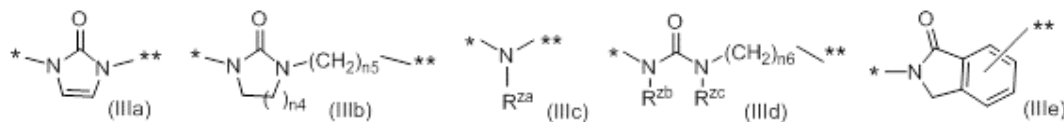
R^9 is selected from a group represented by Formula (IIa), (IIb), (IIc), (II d):

[Chemical Formula 2]



$-\text{CO}_2R^{9f}$, and $-\text{C}(=\text{O})-\text{NR}^{9g}R^{9h}$; and R^{9a} , R^{9b} , R^{9c} , R^{9d} , and R^{9g} are each independently selected from a hydrogen atom, C_{1-6} alkyl (wherein C_{1-6} alkyl is optionally substituted with one or more substituents independently selected from a halogen atom and C_{1-6} alkoxy), and $(C_{1-6} \text{ alkyl})\text{carbonyl}$; R^{9e} is a hydrogen atom, or C_{1-6} alkyl that is optionally substituted with one or more halogen atoms; R^{9f} is a hydrogen atom or C_{1-6} alkyl; R^{9h} is a hydrogen atom, C_{1-6} alkyl, $(C_{1-6} \text{ alkyl})\text{carbonyl}$, cyano, or $-\text{S}(=\text{O})_{n_3}-R^{9i}$; n_3 is an integer of 0 to 2; and R^{9i} is C_{1-6} alkyl; Z^1 is selected from a group represented by Formula (IIIa), (IIIb), (IIIc), (IIId), and (IIIe):

[Chemical Formula 3]



wherein R^{Za} is selected from a hydrogen atom, C_{1-6} alkyl, and $(C_{1-6} \text{ alkyl})\text{carbonyl}$; R^{Zb} and R^{Zc} are independently a hydrogen atom or C_{1-6} alkyl; n_4 is an integer of 1 to 3; n_5 and n_6 are independently an integer of 0 to 10 (* represents a binding position with a pyrazolopyridine structure, and ** represents a binding position with Z^2);

Z^2 is selected from C_{1-6} alkyl, C_{3-15} cycloalkyl, 3 to 12 membered heterocyclyl, C_{6-10}

aryl and 5 to 10 membered heteroaryl, wherein C₃₋₁₅ cycloalkyl, 3 to 12 membered heterocyclyl, C₆₋₁₀ aryl, and 5 to 10 membered heteroaryl are optionally substituted with one to five substituents independently selected from Group A:

Group A: a) oxo,

b) a halogen atom,

c) cyano,

d) -NR^{zd}R^{ze}; wherein R^{zd} and R^{ze} are independently selected from a hydrogen atom, C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl, wherein C₁₋₆ alkyl is optionally substituted with one or more substituents independently selected from hydroxy, a halogen atom and C₁₋₆ alkoxy,

e) -C(=O)-NR^{zf}R^{zg}; wherein R^{zf} and R^{zg} are independently selected from a hydrogen atom, C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl, wherein C₁₋₆ alkyl is optionally substituted with one or more substituents independently selected from hydroxy, a halogen atom and C₁₋₆ alkoxy,

f) -S(=O)_{n7}-R^{zh}; wherein n7 is an integer of 0 to 2; and R^{zh} is a hydrogen atom or C₁₋₆ alkyl,

g) C₁₋₆ alkyl; wherein C₁₋₆ alkyl is optionally substituted with one or more substituent independently selected from a halogen atom, hydroxy, -NR^{zi}R^{zj}, C₁₋₆ alkoxy, and 3 to 12 membered heterocyclyl, wherein R^{zi} and R^{zj} are independently a hydrogen atom or C₁₋₆ alkyl, and wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from hydroxy, C₁₋₆ alkyl and 3 to 12 membered heterocyclyl,

h) C₁₋₆ alkoxy; wherein C₁₋₆ alkoxy is optionally substituted with one or more substituent independently selected from hydroxy, a halogen atom, and C₁₋₆ alkoxy,

i) 3 to 12 membered heterocyclyl; wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl,

j) C₆₋₁₀ aryl; wherein C₆₋₁₀ aryl is optionally substituted with one or more (C₁₋₆ alkyl)carbonyl, and

k) 5 to 10 membered heteroaryl; wherein 5 to 10 membered heteroaryl is optionally substituted with one or more substituents independently selected from C₁₋₆ alkyl, C₁₋₆ alkoxy,

-NR^{zk}R^{zl}, and 3 to 12 membered heterocyclyl, wherein R^{zk} and R^{zl} are independently selected from a hydrogen atom, C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl, and wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl;
a salt thereof, or a solvate of either the compound or a salt of the compound.

2. The compound according to claim 1, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein Q¹ is phenyl or pyridyl, and phenyl or pyridyl is substituted with one to four substituents independently selected from a halogen atom and C₁₋₆ alkyl.

3. The compound according to claim 1 or 2, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein R⁷ and R⁸ are both a hydrogen atom; R⁷ and R⁸ are both C₁₋₆ alkyl; R⁷ is a hydrogen atom and R⁸ is C₁₋₆ alkyl; or R⁷ and R⁸ together with a carbon atom to which they are attached form C₃₋₈ cycloalkane ring, wherein C₃₋₈ cycloalkyl formed is optionally substituted with one to two C₁₋₆ alkyl, and C₁₋₆ alkyl is optionally substituted with one or more substituents independently selected from hydroxy, C₁₋₆ alkoxy, and 3 to 12 membered heterocyclyl.

4. The compound according to any one of claims 1 to 3, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein Z² is selected from C₁₋₆ alkyl, C₃₋₁₅ cycloalkyl, 3 to 12 membered heterocyclyl, C₆₋₁₀ aryl, and 5 to 10 membered heteroaryl, wherein C₃₋₁₅ cycloalkyl, 3 to 12 membered heterocyclyl, C₆₋₁₀ aryl, and 5 to 10 membered heteroaryl are optionally substituted with one to four substituents independently selected from Group B:

Group B: a) oxo,

b) a halogen atom,

c) -NR^{zdl}R^{zel}; wherein R^{zdl} and R^{zel} are independently selected from a hydrogen atom, C₁₋₆ alkyl and (C₁₋₆ alkyl)carbonyl, and C₁₋₆ alkyl is optionally substituted with one or

more C₁₋₆ alkoxy,

d) -S(=O)_{n7}-R^{zh1}; wherein n7 is an integer of 0 to 2, R^{zh1} is C₁₋₆ alkyl,

e) C₁₋₆ alkyl; wherein C₁₋₆ alkyl is optionally substituted with one or more substituents independently selected from a halogen atom, hydroxy, -NR^{zi}R^{zj}, C₁₋₆ alkoxy, and 3 to 12 membered heterocyclyl, wherein R^{zi} and R^{zj} are independently a hydrogen atom or C₁₋₆ alkyl, and wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more substituents independently selected from hydroxy, C₁₋₆ alkyl and 3 to 12 membered heterocyclyl,

f) C₁₋₆ alkoxy; wherein C₁₋₆ alkoxy is optionally substituted with one or more hydroxy,

g) 3 to 12 membered heterocyclyl; wherein 3 to 12 membered heterocyclyl is optionally substituted with one or more (C₁₋₆ alkyl)carbonyl,

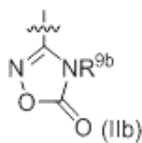
h) 5 to 10 membered heteroaryl; wherein 5 to 10 membered heteroaryl is optionally substituted with one or more substituents independently selected from C₁₋₆ alkyl, and -NR^{zk1}R^{zl1}; and R^{zk1} and R^{zl1} are independently selected from a hydrogen atom and C₁₋₆ alkyl.

5. The compound according to any one of claims 1 to 4, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein Y is -C(=O)-.

6. The compound according to any one of claims 1 to 5, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein R¹ is a hydrogen atom.

7. The compound according to any one of claims 1 to 6, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein n1 and n2 are both 0.

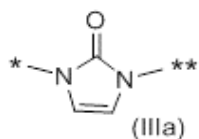
8. The compound according to any one of claims 1 to 7, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein R⁹ is represented by Formula (IIb):
[Chemical Formula 4]



9. The compound according to any one of claims 1 to 8, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein X is -N=, -CH=, or -CF=.

10. The compound according to any one of claims 1 to 9, a salt thereof, or a solvate of either the compound or a salt of the compound, wherein Z¹ is represented by Formula (IIIa):

[Chemical Formula 5]



wherein * represents a binding position with a pyrazolopyridine structure, and ** represents a binding position with Z².

11. A pharmaceutical composition comprising the compound according to any one of claims 1 to 10, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

12. Use of a preventive agent or a therapeutic agent in the manufacture of a medicament for the prevention or treatment of non-insulin-dependent diabetes mellitus (Type 2 diabetes), hyperglycemia, impaired glucose tolerance, insulin dependent diabetes mellitus (Type 1 diabetes), diabetic complication, obesity, hypertension, hyperlipidemia, arteriosclerosis, coronary heart disease, brain infarction, non-alcoholic steatohepatitis, Parkinson's disease, or dementia, wherein the preventative agent or the therapeutic agent comprises the compound according to any one of claims 1 to 10, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

13. Use of a preventive agent or a therapeutic agent in the manufacture of a medicament

for the prevention or treatment of non-insulin-dependent diabetes mellitus (Type 2 diabetes) or obesity, wherein the preventative agent or the therapeutic agent comprises the compound according to any one of claims 1 to 10, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.

14. A preventive agent or a therapeutic agent for use in treating non-insulin-dependent diabetes mellitus (Type 2 diabetes), hyperglycemia, impaired glucose tolerance, insulin dependent diabetes mellitus (Type 1 diabetes), diabetic complication, obesity, hypertension, hyperlipidemia, arteriosclerosis, coronary heart disease, brain infarction, non-alcoholic steatohepatitis, Parkinson's disease, or dementia, wherein the preventative agent or the therapeutic agent comprises the compound according to any one of claims 1 to 10, a salt thereof, or a solvate of either the compound or a salt of the compound as an active ingredient.