



(51) International Patent Classification:

C07D 401/12 (2006.01) A61K 31/444 (2006.01)
C07D 401/14 (2006.01) A61K 31/506 (2006.01)
C07D 413/14 (2006.01) A61P 3/04 (2006.01)
C07D 417/14 (2006.01) A61P 3/10 (2006.01)
C07D 471/04 (2006.01) A61P 9/00 (2006.01)
C07D 491/08 (2006.01) A61P 19/00 (2006.01)

(21) International Application Number:

PCT/IB2011/002814

(22) International Filing Date:

24 November 2011 (24.11.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1335/KOL/2010 26 November 2010 (26.11.2010) IN
539/KOL/2011 14 April 2011 (14.04.2011) IN

(71) Applicant (for all designated States except US): **LUPIN LIMITED** [IN/IN]; 159 CST Road, Kalina, Santacruz (East), State of Maharashtra, 400 098 Mumbai (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **THOTAPALLY, Rajesh** [IN/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN). **KACHI, Onkar, Gangaram** [IN/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN). **RODGE, Atish, Harishchandra** [IN/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN). **PATHAK, Ashok, Bhau** [IN/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN).

KARDILE, Bhavana, Shrirang [IN/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN). **SINDKHEDKAR, Milind, Dattatraya** [IN/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN). **PALLE, Venkata, P.** [US/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN). **KAMBOJ, Rajender, Kumar** [CA/IN]; Lupin Limited (Research Park), 46A/47A, Village Nande, Taluka Mulshi, Maharashtra, 411 042 Pune (IN).

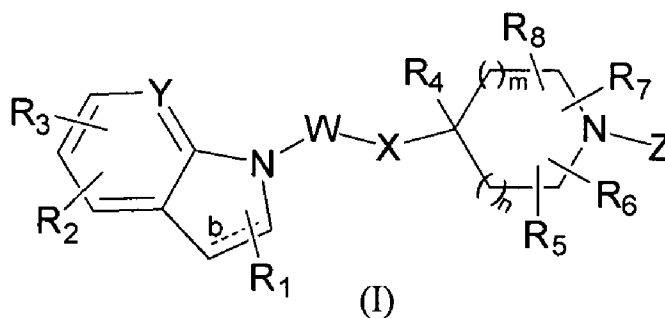
(74) Agents: **MAJUMDAR, Subhatosh** et al.; S. Majumdar & Co., 5, Harish Mukherjee Road, 700 025 Kolkata (IN).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: BICYCLIC GPR119 MODULATORS



(57) Abstract: The present invention relates to compounds of Formula (I) that are useful for treating, preventing and/or managing the diseases, disorders, syndromes or conditions associated with the modulation of GPR119 receptor activity. The invention also relates to the process for preparation of the compounds, pharmaceutical compositions thereof. The invention further relates to methods of treating, preventing and/or managing diseases, disorders syndromes or conditions associated with the modulation of GPR119 receptor by using either alone or in combinations of Formula (I).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

HETEROCYCLIC COMPOUNDS

Related applications

This application claims the benefit of Indian patent applications No. 1335/KOL/2010, filed on November 26, 2010 and 0539/KOL/2011, filed on April 14 2011 all of which is
5 hereby incorporated by reference.

Field of the invention

The invention relates to heterocyclic compounds and their stereoisomers or pharmaceutically acceptable salts thereof. The invention also relates to a process for the preparation of the compounds of invention. The invention also relates to methods of treating,
10 preventing and/or managing diseases, disorders, syndromes or conditions associated with the modulation of the GPR119 receptor. The invention also relates to combination therapy for treating, preventing and/or managing diseases and disorders associated with the modulation of GPR119 receptors.

Background of the invention

15 Diabetes mellitus can be classified into two types: Type I (also referred to as insulin dependent diabetes mellitus) and Type II (also referred to as non-insulin dependent diabetes mellitus). Type I diabetes is an autoimmune disease wherein there is an extensive loss of the insulin producing β -cells of the pancreas. The resulting insulin deficiency leads to hyperglycemia (abnormally high glucose levels in the blood).

20 Type II diabetes mellitus develops as a result of non-responsiveness of muscle, fat and liver cells to insulin. This phenomenon is referred to as insulin resistance and could arise due to a reduced number of insulin receptors on the surface of these cells, or a defective insulin-mediated signaling, or a combination of both. Chronic Type II diabetes leads to pancreatic β -cell dysfunction. Surprisingly, there is no cure for diabetes. The current
25 treatments focus on disease management, by controlling blood glucose levels and delaying complications that arise due to hyperglycemia. Treatments that target insulin resistance include metformin and TZDs (Thiazolidinediones), and those that stimulate insulin secretion, such as sulfonylureas and GLP-1 agonists. Sulfonylureas often lead to hypoglycemia due to excessive insulin secretion. Moreover, the insulin secretion, in this case, is independent of the

blood glucose concentration. GLP-1 agonists stimulate insulin secretion only in the presence of glucose, but it is not orally bioavailable and has to be given intravenously. DPP-IV inhibitors work by increasing the levels of GLP-1 which in turn leads to insulin secretion. (Jones RM, *et al.*, *Expert Opin. Ther. Patents* (2009) 19(10):1339-1359).

5 GPR119 (G protein-coupled receptor) is a member of the rhodopsin family of GPCRs and is a $G_{\alpha s}$ coupled receptor. It is expressed predominantly in the pancreas (β -cells) and gastrointestinal tract (enteroendocrine cells) in humans (Overton HA, *et al.*, *British Journal of Pharmacology* (2008) 153 S76–S81). GPR119 activation by endogenous ligands (e.g., oleoylethanolamide, OEA) leads to an increase in the intracellular concentrations of cAMP,
10 which subsequently leads to increased secretion of glucose-dependent insulintropic peptide (GIP) and glucagon-like peptide (GLP-1). This mechanism is responsible for the glucose stimulated insulin secretion (GSIS) from the β -cells of the pancreas. Treatments that increase GLP-1 secretion may be useful for various conditions and disorders including, but not limited to, metabolic disorders, gastrointestinal disorders, inflammatory diseases, psychosomatic,
15 depressive and neuropsychiatric diseases.

GPR119 is reported to be involved in various diseases in addition to Type 2 diabetes. These include but are not limited to obesity (Overton HA, *et al.*, *British Journal of Pharmacology* (2008) 153 S76–S81) and osteoporosis (WO2007/120689 A2).

As reported in the literature, the agonists of GPR119 receptors are useful as
20 therapeutic agents for treating or preventing a condition modulated by PYY(peptide YY), such as a condition modulated by stimulation of NPY Y2 receptor (Y2R). Conditions modulated by PYY include but are not limited to bone-related conditions, metabolic disorders, angiogenesis-related conditions, ischemia-related conditions, convulsive disorders, malabsorptive disorders, cancers, and inflammatory disorders. PCT application WO
25 2009/126245 A1 discloses GPR119 receptors to be involved in inflammation, inflammatory bowel disease and atherosclerosis.

Obesity is a condition in which individuals have high body mass index (BMI). Overweight conditions and obesity are closely linked to Type 2 diabetes, heart disease, increased cholesterol, dislipidemia, high blood pressure, insulin resistance, glucose

intolerance, hyperinsulinemia, coronary heart disease, angina pectoris, congestive heart failure, strokes, gallstones, cholecystitis, cholelithiasis, gout, osteoarthritis, obstructive sleep apnea, respiratory problems, certain forms of cancers (endometrial, breast, prostate and colon) and psychological disorders (e.g., depression, eating disorder, low self-esteem).

5 Osteoporosis is characterized by the loss of bone mass and the deterioration of skeletal structure leading to decreased bone strength. Patients have an enhanced risk of fractures. Osteoporosis leads to morbidity, mortality and decreased quality of life. Osteoporotic fractures therefore cause substantial mortality, morbidity, and economic cost. With an ageing population, the number of osteoporotic fractures and their costs will at least
10 double in the next 50 years unless effective preventive strategies are developed. (Cole et al., *Curr. Rheum. Reports* (2008); 10; 92-96; Reginster, *Bone* (2006) 38:S4-S9); Boonen, *Curr. Med. Res. Opin.* (2008); 24; 1781-1788).

Atherosclerosis is a condition involving inflammation, lipid accumulation, cell death (necrosis) and fibrosis. Foam cell formation results from monocyte infiltration and
15 cholesterol deposition in the subendothelial space. Complications of atherosclerosis lead to myocardial infarction and stroke. Atherosclerosis is one of the major causes of death in many countries (Ruggeri, *Nat. Med.* (2002); 8; 1227-1234; Li, *Nat. Med.* (2002); 8; 1234-1242).

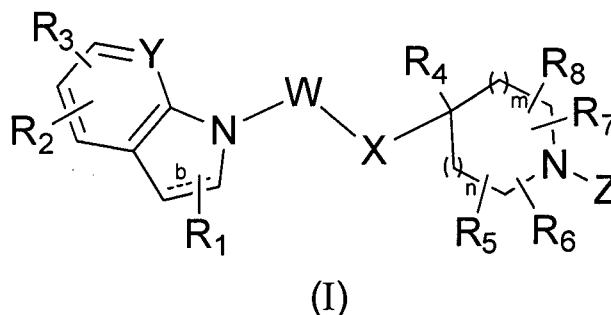
Inflammatory bowel disease (IBD) is a term that includes diseases leading to inflammation of intestine. The diseases that are classified under this category are Crohn's
20 disease, ulcerative colitis and ulcerative proctitis.

Several patent applications disclose compounds that modulate GPR119 receptor activity and their use in the treatment of various diseases and disorders. Some of the patent applications disclosing compounds modulating GPR119 receptor activity are PCT publications JP 2011136942, WO 2010/119881, WO 2010/149685, WO 2010/128425, WO
25 2010/128414, WO 2010/095663, WO 2010/075271, WO 2010/075269, WO 2010/008739, WO 2009/050523, WO 2009/050522, WO 2008/054675, WO 2008/025800, WO 2007/116230, WO 2008/005576, WO 2008/005569, WO 2008/070692, WO 2007/035355, WO 2006/076243, WO 2004/065380, WO 2006/083491, WO 2006/070208, WO

2005/007647, WO 2005/121121, WO 2004/076413. Pyrimidyl indoline compounds having hypoglycemic effect are disclosed in WO 2009/051119 and WO 2009/141238.

Summary of the invention

5 In accordance with one aspect, the invention provides the compounds of Formula (I):



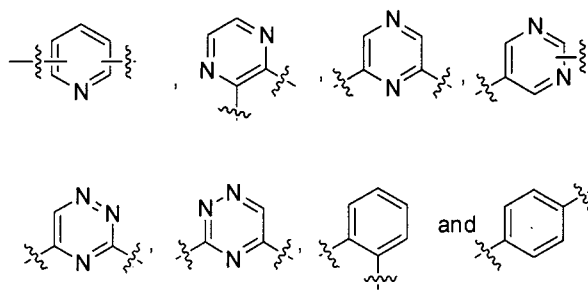
wherein,

$\overset{\text{b}}{\text{---}}$ is a single or double bond; provided that

when $\overset{\text{b}}{\text{---}}$ is a double bond W is selected from group A and group B, and,

10 when $\overset{\text{b}}{\text{---}}$ is a single bond W is selected from group A;

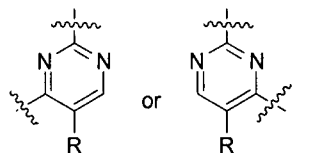
group A is selected from the group consisting of a 6-membered aromatic ring, wherein the 6-membered aromatic ring is selected from the group consisting of



a 5-membered heteroaryl, a cycloalkyl, a heterocyclyl, a bicyclic aryl and a bicyclic

15 heteroaryl, and a member of group A may be optionally substituted with one or more R_{12} ;

group B is selected from the group consisting of



wherein, R at each occurrence is selected from the group consisting of haloalkyl, alkoxy, cycloalkyl and NR_aR_b ;

R_1 , R_2 , are each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, halo, hydroxyalkyl, haloalkyl, $-\text{OR}_a$, $-\text{NR}_a\text{R}_b$, $-\text{C}(\text{O})\text{OR}_a$ and $-\text{C}(\text{O})\text{NR}_a\text{R}_b$;

or when 'b' is single bond, R_1 may be oxo ($=\text{O}$);

R_3 is selected from the group consisting of $-\text{S}(\text{O})_p\text{R}_a$, $-\text{C}(\text{O})\text{OR}_a$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-(\text{CH}_2)_q\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{OR}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{S}(\text{O})_2\text{R}_b$, $-\text{CN}$, alkoxy, hydroxyalkyl, heterocyclyl and heteroaryl;

Y is N or C;

R_a and R_b are each independently selected from the group consisting of hydrogen, alkyl, halo, haloalkyl, hydroxy, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl, alkoxyalkyl, aryl, heteroaryl, arylalkyl, and heterocyclyl; or R_a and R_b may join together with the nitrogen atom to which they are attached to form a heterocyclic ring;

R_4 is selected from the group consisting of hydrogen, alkyl, halo, haloalkyl, cyano and $-\text{OR}_a$;

Z is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, cycloalkylalkyl, heterocyclylalkyl, heteroarylalkyl, arylalkyl, haloalkyl, hydroxyalkyl, $-(\text{CH}_2)_q\text{C}(\text{O})\text{OR}_a$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{OR}_c\text{R}_d\text{R}_e$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{R}_a$, $-\text{C}(\text{O})(\text{CH}_2)_q\text{NR}_a\text{R}_b$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{S}(\text{O})_2\text{R}_a$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{C}(\text{O})\text{CR}_c\text{R}_d\text{R}_e$ and $-(\text{CH}_2)_q\text{CR}_c\text{R}_d\text{R}_e$;

R_c , R_d and R_e are each independently selected from the group consisting of hydrogen, halogen, hydroxyl, alkyl, haloalkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, arylalkyl, and heterocyclyl; or R_c and R_d may join together with the carbon atom to which they are attached to form a 3 to 7 membered carbocyclic or heterocyclic ring;

R_5, R_6, R_7, R_8 are each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, cyano, hydroxy, haloalkyl, alkoxy, $-C(O)OR_a$, $-OC(O)R_a$, $-C(O)NR_aR_b$, $-N(R_a)C(O)R_b$, $-S(O)_pR_a$, $-S(O)_2NR_aR_b$, and $-N(R_a)S(O)_2R_b$; wherein R_5, R_6, R_7 , and R_8 may be present on same or different carbon atom; or any two of R_4, R_5, R_6, R_7, R_8 and Z may join together to form a cycloalkyl or heterocyclyl ring; or any two of R_5, R_6, R_7 and R_8 , when they are attached to the same carbon, may together form oxo ($=O$);

X is selected from the group consisting of $-(CR_{10}R_{11})_qO(CR_{10}R_{11})_t$, $-(CR_{10}R_{11})_qS(O)_p(CR_{10}R_{11})_t$ and $-(CR_{10}R_{11})_qNR_9(CR_{10}R_{11})_t$;

R_9 is hydrogen or alkyl;

R_{10} and R_{11} are each independently selected from the group consisting of hydrogen, halogen, alkyl and haloalkyl; or R_{10} and R_{11} may join together with the carbon atom to which they are attached to form a 3 to 7 membered carbocyclic ring;

R_{12} at each occurrence is independently selected from hydrogen, alkyl, halogen, haloalkyl, alkoxy, cycloalkyl and NR_aR_b ;

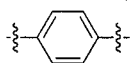
'm', 'n' and 'p' are each independently selected from 0, 1 or 2;

'q' is an integer ranging from 0 to 4, both inclusive;

't' is an integer ranging from 0 to 4, both inclusive;

with the proviso that when $\frac{b}{a}$ is double bond and

W is



, then X is not $-NH-$ or $-NHCH(R_{11})$;

and

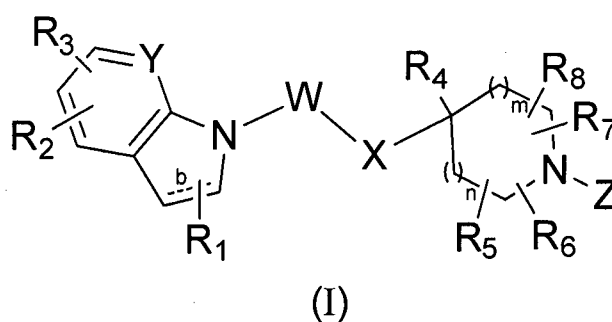
wherein, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, heterocyclyl wherever they occur may optionally be substituted with one or more substituents independently selected from hydroxy, halo, cyano, nitro, oxo ($=O$), thio ($=S$), alkyl, haloalkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, cycloalkylalkyl, cycloalkenyl, heteroaryl, heterocyclic ring, heterocyclylalkyl, heteroarylalkyl, $-C(O)OR^x$, $-C(O)R^x$, $-C(S)R^x$, $-C(O)NR^xR^y$, -

$\text{NR}^x\text{C}(\text{O})\text{NR}^y\text{R}^z$, $-\text{N}(\text{R}^x)\text{S}(\text{O})\text{R}^y$, $-\text{N}(\text{R}^x)\text{S}(\text{O})_2\text{R}^y$, $-\text{NR}^x\text{R}^y$, $-\text{NR}^x\text{C}(\text{O})\text{R}^y$, $-\text{NR}^x\text{C}(\text{S})\text{R}^y$, $-\text{NR}^x\text{C}(\text{S})\text{NR}^y\text{R}^z$, $-\text{S}(\text{O})\text{NR}^x\text{R}^y$, $-\text{S}(\text{O})_2\text{NR}^x\text{R}^y$, $-\text{OR}^x$, $-\text{OC}(\text{O})\text{R}^x$, $-\text{OC}(\text{O})\text{NR}^x\text{R}^y$, $-\text{R}^x\text{C}(\text{O})\text{OR}^y$, $-\text{R}^x\text{C}(\text{O})\text{NR}^y\text{R}^z$, $-\text{R}^x\text{C}(\text{O})\text{R}^y$, $-\text{SR}^x$, $-\text{S}(\text{O})\text{R}^x$, and $-\text{S}(\text{O})_2\text{R}^x$; wherein each occurrence of R^x , R^y and R^z are independently selected from hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic ring, heterocyclalkyl ring and heteroarylalkyl;

or pharmaceutically acceptable salt thereof.

The below embodiments are illustrative in nature only and are not intended to limit the scope of the invention.

According to one embodiment there are provided compounds of Formula (I):

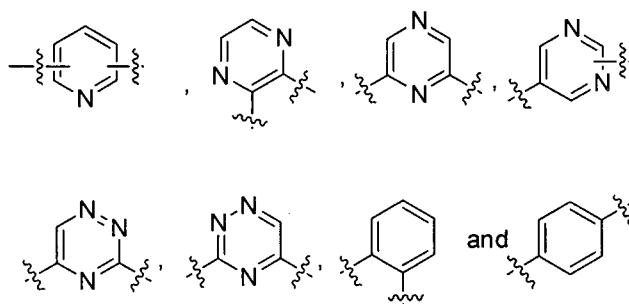


or pharmaceutically acceptable salt thereof;

wherein,

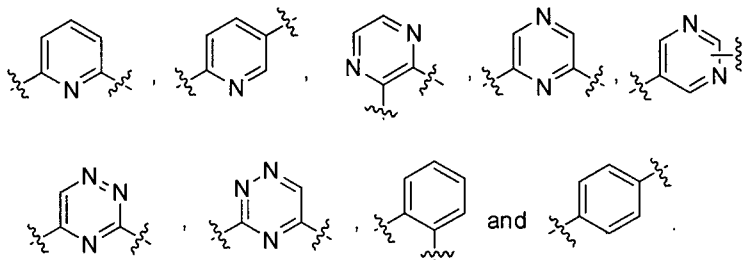
$\overset{\text{b}}{\text{---}}$ is a single or double bond;

W is selected from 6-membered aromatic ring selected from the group consisting of:

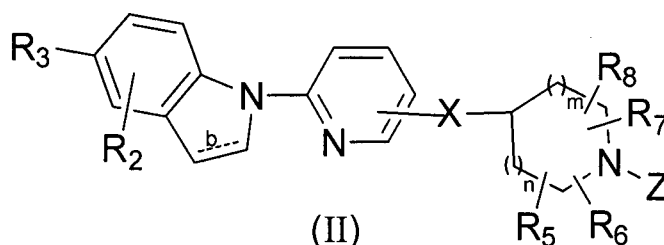


X , Z , R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 , 'n' and 'm' are as defined herein above.

According to another embodiment there are provided compounds of Formula (I) in which $\overset{b}{\text{---}}$ is a double bond and W is selected from 6-membered aromatic ring selected from the group consisting of:



5 According to another embodiment there are provided compounds of Formula (II):



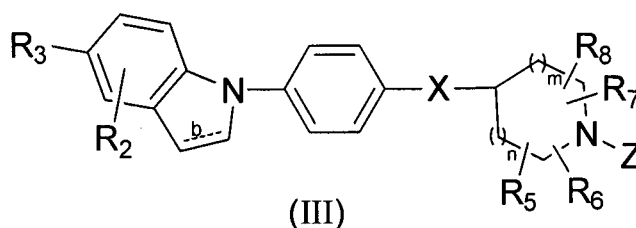
or pharmaceutically acceptable salt thereof;

wherein,

$\overset{b}{\text{---}}$ is a single or double bond;

10 X, Z, R₂, R₃, R₅, R₆, R₇, R₈, 'n' and 'm' are as defined herein above.

According to another embodiment there are provided compounds of Formula (III):



or pharmaceutically acceptable salt thereof;

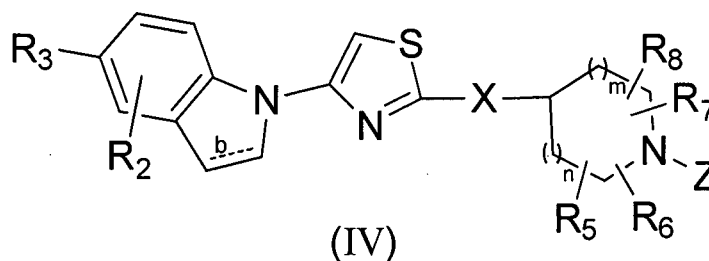
wherein,

15 $\overset{b}{\text{---}}$ is a single or double bond;

R_3 is selected from the group consisting of $-S(O)_pR_a$, $-C(O)OR_a$, $-(CH_2)_qC(O)NR_aR_b$, $-(CH_2)_qN(R_a)C(O)R_b$, $-N(R_a)C(O)OR_b$, $-N(R_a)C(O)NR_aR_b$, $-S(O)_2NR_aR_b$, $-N(R_a)S(O)_2R_b$, hydroxyalkyl and heterocyclyl;

X , Z , R_2 , R_5 , R_6 , R_7 , R_8 , 'n' and 'm' are as defined herein above.

5 According to another embodiment there are provided compounds of Formula (IV):



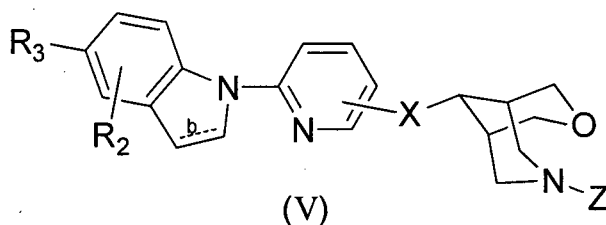
or pharmaceutically acceptable salt thereof;

wherein,

$\overset{b}{\text{---}}$ is a single or double bond;

10 X , Z , R_2 , R_3 , R_5 , R_6 , R_7 , R_8 , 'n' and 'm' are as defined herein above.

According to another embodiment there are provided compounds of Formula (V):



or pharmaceutically acceptable salt thereof;

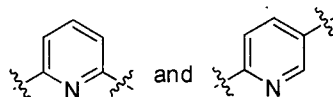
wherein,

15 $\overset{b}{\text{---}}$ is a single or double bond;

X , Z , R_2 , and R_3 are as defined herein above.

It should be understood that Formula (I), (II), (III), (IV) and (V) structurally encompass all N-oxides, tautomers, stereoisomers and pharmaceutically acceptable salts that may be contemplated from the chemical structures described herein.

According to one sub embodiment there are provided a compound of Formula (I) in which W is selected from



According to another sub embodiment there are provided a compound of Formula (II), (III), (IV) and/or (V) in which X is $-(\text{CR}_{10}\text{R}_{11})_q\text{O}(\text{CR}_{10}\text{R}_{11})_t-$ and $-(\text{CR}_{10}\text{R}_{11})_q\text{NR}_9(\text{CR}_{10}\text{R}_{11})_t-$; wherein 'q' is 0 or 1; 't' is 0 or 1; and each of R_{10} and R_{11} are independently selected from hydrogen, halogen or alkyl.

According to another sub embodiment there are provided a compound of Formula (II), (III), (IV) and/or (V) in which R_2 is hydrogen or halogen.

According to another sub embodiment there are provided a compound of Formula (II), (IV) and/or (V) in which R_3 is $-\text{CN}$, alkoxy, hydroxyalkyl, $\text{C}(\text{O})\text{OR}_a$, $-\text{S}(\text{O})_2\text{R}_a$, $-\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{CH}_2\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{OR}_b$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{S}(\text{O})_2\text{R}_b$, heterocyclyl or heteroaryl wherein R_a and R_b are each and independently a hydrogen, alkyl, haloalkyl, cycloalkyl, hydroxyalkyl, aryl, heteroaryl or heterocyclyl; or R_a and R_b may join together with the nitrogen atom to which they are attached to form a heterocyclic ring.

According to another sub embodiment there are provided a compound of Formula (III) in which R_3 is hydroxyalkyl, $\text{C}(\text{O})\text{OR}_a$, $-\text{S}(\text{O})_2\text{R}_a$, $-\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{CH}_2\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{OR}_b$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{S}(\text{O})_2\text{R}_b$, heterocyclyl wherein R_a and R_b are each and independently a hydrogen, alkyl, haloalkyl, cycloalkyl, hydroxyalkyl, aryl, heteroaryl or heterocyclyl; or R_a and R_b may join together with the nitrogen atom to which they are attached to form a heterocyclic ring.

According to another sub embodiment there are provided a compound of Formula (II), (III), (IV) and/or (V) in which Z is hydrogen, alkyl, haloalkyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, heterocyclylalkyl, heteroarylalkyl, arylalkyl, hydroxyalkyl, $-\text{C}(\text{O})\text{OR}_a$, $-\text{C}(\text{O})\text{R}_a$, $-\text{C}(\text{O})\text{CR}_c\text{R}_d\text{R}_e$, $-(\text{CH}_2)_q\text{CR}_c\text{R}_d\text{R}_e$, $-\text{S}(\text{O})_2\text{R}_a$ or $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$ wherein R_a , R_b , R_c , R_d and R_e are each and independently a hydrogen, alkyl, halo, haloalkyl, hydroxy, cycloalkyl,

hydroxyalkyl, aryl, heteroaryl, arylalkyl, and heterocyclyl; or R_a and R_b may join together with the nitrogen atom to which they are attached to form a heterocyclic ring; or R_c and R_d may join together with the carbon atom to which they are attached to form a 3 to 7 membered carbocyclic or heterocyclic ring.

5 According to another sub embodiment there are provided a compound of Formula (II), (III) and/or (IV) in which 'm' is 0 or 1; and 'n' is 0 or 1.

According to another sub embodiment there are provided a compound of Formula (II), (III) and/or (IV) in which R_5 , R_6 , R_7 and R_8 are each and independently selected from the group consisting of hydrogen, alkyl, cyano, hydroxy, haloalkyl or alkoxy; or any two of R_4 ,
10 R_5 , R_6 , R_7 , R_8 and Z may join together to form a cycloalkyl or heterocyclyl ring; or any two of R_5 , R_6 , R_7 and R_8 , when they are attached to the same carbon, may together form oxo (=O).

According to another sub embodiment there are provided a compound of Formula (I), (II), (III), (IV) and/or (V) in which $\overset{b}{\text{---}}$ is a single or double bond; W is selected from group
15 A as defined herein above or 5-membered heteroaryl; R_2 is hydrogen or halogen; R_3 is - $S(O)_2R_a$, - $C(O)NR_aR_b$, - $N(R_a)C(O)R_b$, - $N(R_a)C(O)OR_b$, heterocyclyl, heterocyclylalkyl or heteroaryl wherein R_a and R_b are each independently a hydrogen, alkyl; X is -O, -NH-; Z is alkyl, haloalkyl, heteroaryl, heterocyclyl, - $C(O)Oalkyl$, - $C(O)CR_cR_dR_e$, -(CH₂)_qCR_cR_dR_e; R_5 ,
20 R_6 , R_7 and R_8 are hydrogen or halogen or any two of R_4 , R_5 , R_6 , R_7 , R_8 and Z may join together to form a cycloalkyl or heterocyclyl ring; R_c , R_d , and R_e are as defined herein above; 'm' is 1; and 'n' is 1.

In another embodiment of the invention there is provided a pharmaceutical composition comprising at least one compound of Formula (I) and one or more pharmaceutically acceptable excipients such as a carrier or a diluent. Preferably, the
25 pharmaceutical composition comprises a therapeutically affective amount of at least one compound of Formula (I).

In another embodiment of the invention there is provided a pharmaceutical composition comprising a compound of Formula (I) for treating, preventing, and/or

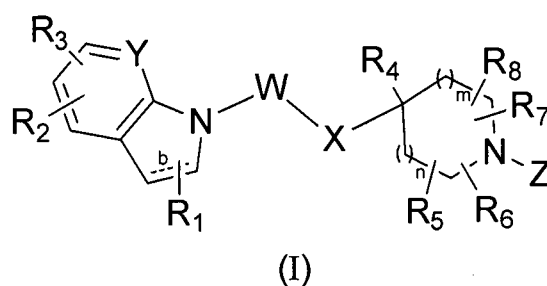
managing diseases, disorders, syndromes or conditions associated with the modulation of the GPR119 receptor.

In another embodiment of the invention, the compounds of Formula (I) may be used either alone or in combination with one or more therapeutically active agents described herein for treating, preventing, managing diseases, disorders, syndromes or conditions associated with the modulation of the GPR119 receptor.

In another embodiment, the invention further provides methods of treating, preventing, and/or managing diseases, disorders, syndromes or conditions associated with the modulation of the GPR119 receptor.

In another embodiment, the invention is related to a pharmaceutical composition comprising a therapeutically effective amount of at least one of the compound of Formula (I) or its stereoisomers, or pharmaceutically acceptable salts thereof, and one or more pharmaceutically acceptable carriers or diluents for treating, preventing, managing diseases, disorders, syndromes or conditions associated with the modulation of the GPR119 receptor.

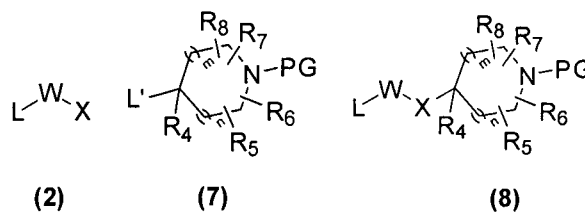
In another embodiment of the invention there are provided processes for the preparation of compounds of the invention having the structure of Formula (I):



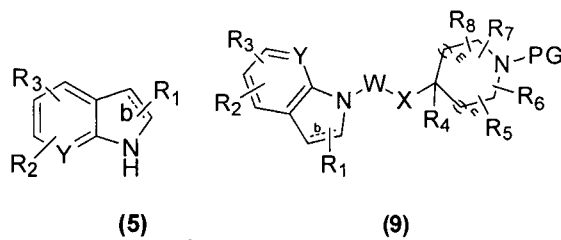
comprising,

- a) reacting a compound of formula (2) where L is a leaving group, with a compound of formula (7), where L' is a leaving group PG is protecting group, in the presence of suitable base to give a compound of formula (8),

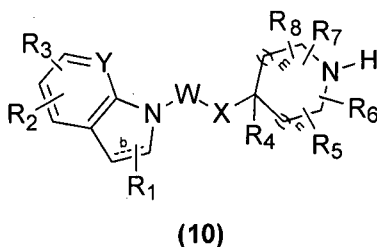
13



- b) treating the compound of formula (8) with a compound of formula (5) in the presence of palladium catalyst to give a compound of formula (9),



- 5 c) deprotecting the compound of formula (9) with a suitable reagent to give a compound of formula (10), and



- d) coupling the compound of formula (10) with Z-L where L is a leaving group, to obtain the compound of formula (I).

10 The details of one or more embodiments of the inventions are set forth in the description below. Other features, objects and advantages of the inventions will be apparent from the description and claims.

Detailed description of the invention

15 Unless otherwise stated, the following terms used in the specification and claims have the meanings given below:

For purposes of interpreting this specification, the following definitions will apply and whenever appropriate, terms used in the singular will also include the plural and vice versa.

The terms "halogen" or "halo" means fluorine, chlorine, bromine, or iodine.

The term "oxo" means the C(=O) group. Such an oxo group may be a part of either a cycle or a chain in the compounds of the present invention.

The term "alkyl" refers to an alkane derived hydrocarbon radical that includes solely carbon and hydrogen atoms in the backbone, containing no unsaturation, having from one to six carbon atoms, and which is attached to the rest of the molecule by a single bond, e.g., methyl, ethyl, n-propyl, 1-methylethyl (isopropyl), n-butyl, n-pentyl, 1,1-dimethylethyl (t-butyl) and the like. Unless set forth or recited to the contrary, all alkyl groups described or claimed herein may be straight chain or branched, substituted or unsubstituted.

The term "alkenyl" refers to a hydrocarbon radical containing from 2 to 10 carbon atoms and including at least one carbon-carbon double bond. Non-limiting Examples of alkenyl groups include ethenyl, 1-propenyl, 2-propenyl (allyl), *iso*-propenyl, 2-methyl-1-propenyl, 1-butenyl, 2-butenyl and the like. Unless set forth or recited to the contrary, all alkenyl groups described or claimed herein may be straight chain or branched, substituted or unsubstituted.

The term "alkynyl" refers to a hydrocarbon radical containing at least one carbon-carbon triple bond, and having 2 to about 10 carbon atoms. Non-limiting examples of alkynyl groups include ethynyl, propynyl, butynyl and the like. Unless set forth or recited to the contrary, all alkynyl groups described or claimed herein may be straight chain or branched, substituted or unsubstituted.

The term "alkoxy" denotes an alkyl group attached via an oxygen linkage to the rest of the molecule. Representative examples of such groups are -OCH₃ and -OC₂H₅. Unless set forth or recited to the contrary, all alkoxy groups described or claimed herein may be straight chain or branched, substituted or unsubstituted.

The term "cycloalkyl" refers to a non-aromatic mono or multicyclic ring system of 3 to about 12 carbon atoms, such as cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and the like. Examples of multicyclic cycloalkyl groups include, but are not limited to, perhydronaphthyl, adamantyl and norbornyl groups, bridged cyclic groups or spirobicyclic groups, e.g., spiro(4,4)non-2-yl and the like. Unless set forth or recited to the contrary, all cycloalkyl groups described or claimed herein may be substituted or unsubstituted.

The term "cycloalkylalkyl" refers to a cycloalkyl group as defined above, directly bonded to an alkyl group as defined above, e.g., cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclohexylethyl etc. Unless set forth or recited to the contrary, all cycloalkylalkyl groups described or claimed herein may be substituted or unsubstituted.

The term "cycloalkenyl" refers to a monocyclic or bicyclic nonaromatic carbocyclic radical containing at least one double bond and having from 3 to 10 ring members, and refers in particular cyclobutenyl, cyclopentenyl or cyclohexenyl radicals. Unless set forth or recited to the contrary, all cycloalkyl groups described or claimed herein may be substituted or unsubstituted.

The term "haloalkyl" refers to an alkyl, as defined herein, that is substituted by one or more halogen groups as defined herein. Preferably, the haloalkyl may be monohaloalkyl, dihaloalkyl or polyhaloalkyl including perhaloalkyl. A monohaloalkyl can have one iodine, bromine, chlorine or fluorine substituent. Dihalalkyl and polyhaloalkyl groups can be substituted with two or more of the same halogen atoms or a combination of different halogen groups. Preferably, a polyhaloalkyl is substituted with up to 12, 10, 8, 6, 4, 3, or 2 halogen groups. Non-limiting examples of haloalkyl include fluoromethyl, difluoromethyl, trifluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, pentafluoroethyl, heptafluoropropyl, difluorochloromethyl, dichlorofluoromethyl, difluoroethyl, difluoropropyl, dichloroethyl, dichloropropyl and the like. A perhaloalkyl refers to an alkyl having all hydrogen atoms replaced with halogen atoms.

The term "hydroxyalkyl" refers to an alkyl, as defined herein, that is substituted by one or more hydroxy groups. Preferably the hydroxyalkyl can be monohydroxyalkyl or dihydroxyalkyl. Non-limiting examples of hydroxyalkyl include 2- hydroxyethyl, 3- hydroxypropyl, 2-hydroxypropyl, and the like.

5 The term "aryl" refers to an aromatic radical having 6 to 14 carbon atoms, including monocyclic, bicyclic and tricyclic aromatic systems, such as phenyl, naphthyl, tetrahydronaphthyl, indanyl, and biphenyl and the like. Unless set forth or recited to the contrary, all aryl groups described or claimed herein may be substituted or unsubstituted.

10 The term "arylalkyl" refers to an aryl group as defined above, directly bonded to an alkyl group as defined above, e.g., $-\text{CH}_2\text{C}_6\text{H}_5$ and $-\text{C}_2\text{H}_4\text{C}_6\text{H}_5$. Unless set forth or recited to the contrary, all arylalkyl groups described or claimed herein may be substituted or unsubstituted.

The term "heterocyclic ring" or "heterocyclyl ring" or "heterocyclyl", unless otherwise specified, refers to substituted or unsubstituted non-aromatic 3- to 15- membered ring which
15 consists of carbon atoms and with one or more heteroatom(s) independently selected from N, O or S. The heterocyclic ring may be a mono-, bi- or tricyclic ring system, which may include fused, bridged or spiro ring systems and the nitrogen, carbon, oxygen or sulfur atoms in the heterocyclic ring may be optionally oxidized to various oxidation states. In addition, the nitrogen atom may be optionally quaternized, the heterocyclic ring or heterocyclyl may
20 optionally contain one or more olefinic bond(s), and one or two carbon atoms(s) in the heterocyclic ring or heterocyclyl may be interrupted with $-\text{C}(\text{O})-$, $-\text{C}(=\text{N}-\text{alkyl})-$, or $-\text{C}(=\text{N}-\text{cycloalkyl})-$, etc. In addition the heterocyclic ring may be fused with aromatic ring. Non-limiting examples of heterocyclic rings include azepinyl, azetidiny, benzodioxolyl, benzodioxanyl, benzopyranyl, chromanyl, dioxolanyl, dioxaphospholanyl,
25 decahydroisoquinolyl, indanyl, indoliny, isoindoliny, isochromanyl, isothiazolidinyl, isoxazolidinyl, morpholiny, oxazoliny, oxazolidinyl, 2-oxopiperazinyl, 2- oxopiperidinyl, 2-oxopyrrolidinyl, 2-oxoazepinyl, octahydroindolyl, octahydroisoindolyl, perhydroazepinyl,

piperazinyl, 4-piperidonyl, pyrrolidinyl, piperidinyl, phenothiazinyl, phenoxazinyl, quinuclidinyl, tetrahydroisquinolyl, tetrahydrofuryl, tetrahydropyranyl, thiazolinyl, thiazolidinyl, thiamorpholinyl, thiamorpholinyl sulfoxide, thiamorpholinyl sulfone and the like. The heterocyclic ring may be attached to the main structure at any heteroatom or carbon atom that results in the creation of a stable structure. Unless set forth or recited to the contrary, all heterocyclyl groups described or claimed herein may be substituted or unsubstituted.

A "carbocyclic ring" or "carbocycle" as used herein refers to a 3- to 10- membered saturated or unsaturated, monocyclic, fused bicyclic, spirocyclic or bridged polycyclic ring containing carbon atoms, which may optionally be substituted, for example, carbocyclic rings include but are not limited to cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylene, cyclohexanone, aryl, naphthyl, adamantyl etc. Unless set forth or recited to the contrary, all carbocyclic groups or rings described or claimed herein may be aromatic or non aromatic.

The term "heteroaryl" unless otherwise specified, refers to substituted or unsubstituted 5 to 14 membered aromatic heterocyclic ring radical with one or more heteroatom(s) independently selected from N, O or S. The heteroaryl may be a mono-, bi- or tricyclic ring system. The heteroaryl ring radical may be attached to the main structure at any heteroatom or carbon atom that results in the creation of a stable structure. Examples of such heteroaryl ring radicals include, but are not limited to, oxazolyl, isoxazolyl, imidazolyl, furyl, indolyl, isoindolyl, pyrrolyl, triazolyl, triazinyl, tetrazoyl, thienyl, thiazolyl, isothiazolyl, pyridyl, pyrimidinyl, pyrazinyl, pyridazinyl, benzofuranyl, benzothiazolyl, benzoxazolyl, benzimidazolyl, benzothienyl, benzopyranyl, carbazolyl, quinoliny, isoquinoliny, quinazoliny, cinnoliny, naphthyridinyl, pteridinyl, purinyl, quinoxaliny, quinolyl, isoquinolyl, thiadiazolyl, indoliziny, acridinyl, phenazinyl, phthalazinyl and the like. Unless set forth or recited to the contrary, all heteroaryl groups described or claimed herein may be substituted or unsubstituted.

The term "heterocyclalkyl" refers to a heterocyclic ring radical directly bonded to an alkyl group. The heterocyclalkyl radical may be attached to the main structure at any carbon atom in the alkyl group that results in the creation of a stable structure. Unless set forth or recited to the contrary, all heterocyclalkyl groups described or claimed herein may be substituted or unsubstituted.

The term "heteroarylalkyl" refers to a heteroaryl ring radical directly bonded to an alkyl group. The heteroarylalkyl radical may be attached to the main structure at any carbon atom in the alkyl group that results in the creation of a stable structure. Unless set forth or recited to the contrary, all heteroarylalkyl groups described or claimed herein may be substituted or unsubstituted.

Unless otherwise specified, the term "substituted" as used herein refers to a group or moiety having one or more substituents attached to the structural skeleton of the group or moiety. Such substituents include, but are not limited to hydroxy, halo, carboxyl, cyano, nitro, oxo (=O), thio (=S), alkyl, haloalkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, cycloalkylalkyl, cycloalkenyl, amino, heteroaryl, heterocyclic ring, heterocyclalkyl, heteroarylalkyl, $-C(O)OR^x$, $-C(O)R^x$, $-C(S)R^x$, $-C(O)NR^xR^y$, $-NR^xC(O)NR^yR^z$, $-N(R^x)S(O)R^y$, $-N(R^x)S(O)_2R^y$, $-NR^xR^y$, $-NR^xC(O)R^y$, $-NR^xC(S)R^y$, $-NR^xC(S)NR^yR^z$, $-S(O)NR^xR^y$, $-S(O)_2NR^xR^y$, $-OR^x$, $-OC(O)R^x$, $-OC(O)NR^xR^y$, $-R^xC(O)OR^y$, $-R^xC(O)NR^yR^z$, $-R^xC(O)R^y$, $-SR^x$, $-S(O)R^x$, and $-S(O)_2R^x$; wherein each occurrence of R^x , R^y and R^z are independently selected from hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic ring, heterocyclalkyl ring and heteroarylalkyl.

"May optionally be substituted" means that the moiety or group may or may not be substituted. For example, "optionally substituted aryl" means that the aryl radical may or may not be substituted and that the description includes both substituted aryl radicals and aryl radicals having no substitution.

Unless otherwise stated, in the present application "protecting group" (PG) refers to the groups intended to protect an otherwise labile group, e.g., an amino group, a carboxy group and the like, under specific reaction conditions. Various protecting groups along with the methods of protection and deprotection are generally known to a person of ordinary skill in the art. Incorporated herein in this regard as reference is *Greene's Protective Groups in Organic Synthesis*, 4th Edition, John Wiley & Sons, New York. In the present invention, preferred amino protecting groups are *t*-butoxycarbonyl, benzyloxycarbonyl, acetyl and the like; while preferred carboxy protecting groups are esters, amides and the like.

A "stereoisomer" refers to a compound made up of the same atoms bonded by the same bonds but having different three-dimensional structures, which are not interchangeable. The invention contemplates various stereoisomers and mixtures thereof and includes "enantiomers", which refers to two stereoisomers whose molecules are non-superimposable mirror images of one another.

The term "treating" or "treatment" of a state, diseases, disorders, syndromes or conditions includes: (a) preventing or delaying the appearance of clinical symptoms of the state, disease, disorder, condition or syndrome developing in a subject that may be afflicted with or predisposed to the state, disease, disorder, condition or syndrome but does not yet experience or display clinical or subclinical symptoms of the state, disease, disorder, condition or syndrome; (b) inhibiting the state, disease, disorder, condition or syndrome, i.e., arresting or reducing the development of the disease or at least one clinical or subclinical symptom thereof; and/or (c) slowing the progression of a disease, disorder, condition or syndrome or at least one of its clinical or subclinical symptoms thereof.

The term "modulate" or "modulating" or "modulation" refers to an increase or decrease in the amount, quality, or effect of a particular activity, function or molecule; by way of illustration and not limitation, agonists, partial agonists, inverse agonists, and antagonists of a G protein-coupled receptor are modulators of the receptor. For example, the compounds of invention are useful as modulators of the GPR119 receptor.

The term "subject" includes mammals preferably humans and other animals, such as domestic animals; e.g., household pets including cats and dogs and non-domestic animals.

A "therapeutically effective amount" means the amount of a compound that, when administered to a subject for treating a state, disease, disorder, condition or syndrome, is sufficient to cause the effect in the subject which is the purpose of the administration. The "therapeutically effective amount" will vary depending on the compound, the disease and its severity and the age, weight, physical condition and responsiveness of the subject to be treated.

The compounds of the invention may form salts. Non-limiting examples of pharmaceutically acceptable salts forming part of this invention include salts derived from inorganic bases, salts of organic bases, salts of chiral bases, salts of natural amino acids and salts of non-natural amino acids. With respect to the overall compounds described by the Formula (I), the invention extends to these stereoisomeric forms and to mixtures thereof. The different stereoisomeric forms of the present patent application may be separated from one another by the method known in the art, or a given isomer may be obtained by stereospecific or asymmetric synthesis. Tautomeric forms and mixtures of compounds described herein are also contemplated.

Screening of compounds of invention for GPR119 receptor modulation activity may be achieved by using various in-vitro and in-vivo protocols mentioned herein below or methods known in the art.

Pharmaceutical Compositions

The invention relates to pharmaceutical compositions containing the compounds of the Formula (I) disclosed herein. In particular, pharmaceutical compositions containing a therapeutically effective amount of at least one compound of Formula (I) described herein and at least one pharmaceutically acceptable excipient such as a carrier or diluent. Preferably, the contemplated pharmaceutical compositions include the compound(s) described herein in

an amount sufficient to modulate GPR119 receptor mediated diseases described herein when administered to a subject.

The compounds of the invention may be associated with a pharmaceutically acceptable excipient such as a carrier or a diluent or be diluted by a carrier, or enclosed
5 within a carrier which can be in the form of a capsule, sachet, paper or other container. The pharmaceutically acceptable excipient includes pharmaceutical agents that do not induce the production of antibodies harmful to the individual receiving the composition, and which may be administered without undue toxicity.

Examples of suitable carriers include, but are not limited to, water, salt solutions,
10 alcohols, polyethylene glycols, polyhydroxyethoxylated castor oil, peanut oil, olive oil, gelatin, lactose, terra alba, sucrose, dextrin, magnesium carbonate, sugar, cyclodextrin, amylose, magnesium stearate, talc, gelatin, agar, pectin, acacia, stearic acid or lower alkyl ethers of cellulose, salicylic acid, fatty acids, fatty acid amines, fatty acid monoglycerides and diglycerides, pentaerythritol fatty acid esters, polyoxyethylene, hydroxymethylcellulose
15 and polyvinylpyrrolidone.

The pharmaceutical composition may also include one or more pharmaceutically acceptable auxiliary agents, wetting agents, emulsifying agents, suspending agents, preserving agents, salts for influencing osmotic pressure, buffers, sweetening agents, flavoring agents, stabilizers, surfactants, colorants, or any combination of the foregoing. The
20 pharmaceutical composition of the invention may be formulated so as to provide quick, sustained, or delayed release of the active ingredient after administration to the subject by employing procedures known in the art.

The pharmaceutical compositions described herein may be prepared by conventional techniques known in the art. For example, the active compound of Formula (I) can be mixed
25 with a carrier, or diluted by a carrier, or enclosed within a carrier, which may be in the form of an ampoule, capsule, sachet, paper, or other container. When the carrier serves as a

diluent, it may be a solid, semi-solid, or liquid material that acts as a vehicle, excipient, or medium for the active compound. The active compound can be adsorbed on a granular solid container, for example, in a sachet.

The pharmaceutical compositions may be in conventional forms, for example,
5 capsules, tablets, aerosols, solutions, suspensions or products for topical application.

The route of administration may be any route which effectively transports the active compound of the invention, to the appropriate or desired site of action. Suitable routes of administration include, but are not limited to, oral, nasal, pulmonary, buccal, subdermal, intradermal, transdermal, parenteral, rectal, depot, subcutaneous, intravenous, intraurethral,
10 intramuscular, intranasal, ophthalmic (such as with an ophthalmic solution) or topical (such as with a topical ointment).

Solid oral formulations include, but are not limited to, tablets, capsules (soft or hard gelatin), dragees (containing the active ingredient in powder or pellet form), troches and lozenges. Tablets, dragees, or capsules having talc and/or a carbohydrate carrier or binder or
15 the like are particularly suitable for oral application. Liquid formulations include, but are not limited to, syrups, emulsions, soft gelatin and sterile injectable liquids, such as aqueous or non-aqueous liquid suspensions or solutions. For parenteral application, particularly suitable are injectable solutions or suspensions formulation.

The pharmaceutical preparation is preferably in unit dosage form. In such form, the
20 preparation is subdivided into unit doses containing appropriate quantities of the active component. The unit dosage form can be a packaged preparation; the package containing discrete quantities of preparation, such as pocketed tablets, capsules, and powders in vials or ampoules. Also, the unit dosage form can be a capsule, tablet, cachet, or lozenge itself, or it can be the appropriate number of any of these in packaged form.

25 For administration to subject patients, the total daily dose of the compounds of the invention depends, of course, on the mode of administration. For example, oral

administration may require a higher total daily dose, than an intravenous (direct into blood). The quantity of active component in a unit dose preparation may be varied or adjusted from 0.1 mg to 10000 mg, according to the potency of the active component or mode of administration.

5 Suitable doses of the compounds, for use in treating the diseases and disorders described herein, can be determined by those skilled in the relevant art. Therapeutic doses are generally identified through a dose ranging study in subject based on preliminary evidence derived from the animal studies. Doses must be sufficient to result in a desired therapeutic benefit without causing unwanted side effects for the patient. For example, the daily dosage
10 of the GPR119 modulator can range from about 0.1 to about 30.0 mg/kg. Mode of administration, dosage forms, suitable pharmaceutical excipients, diluents or carriers can also be well used and adjusted by those skilled in the art. All changes and modifications are envisioned within the scope of the invention.

15 In one embodiment of the invention, the compound of Formula (I) and / or the pharmaceutical compositions of Formula (I) may be used either alone or in combination with one or more additional therapeutic agents for treating, preventing, managing diseases, disorders, syndromes or conditions associated with the modulation of the GPR119 receptor.

20 The compounds and compositions of the invention and the additional therapeutic agent as described herein may be administered simultaneously, sequentially or separately. The combination of the compound of Formula (I) with any one or more additional therapeutic agent may be given to the subject in the same or separate dosage formulation.

25 Where separate dosage formulations are used, the compound of Formula (I) and one or more additional therapeutic agents can be administered at essentially the same time i.e., concurrently, or at separately staggered times i.e., sequentially. Combination therapy is understood to include all these regimens. Selection of additional therapeutic agents will, in large part, depend on the desired target therapy. Turner N, et al, Prog. Drug Res. (1998) 51

:33-94; Haffner S, *Diabetes Care* (1998) 21 :160- 178; and DeFronzo R, et al. (eds.), *Diabetes Reviews* (1997) Vol. 5 No. 4. A number of studies have investigated the benefits of combination therapies with oral agents {see, e.g., Mahler R, *J. Clin. Endocrinol. Metab.* (1999) 84:1165-71; United Kingdom Prospective Diabetes Study Group: UKPDS 28, *Diabetes Care* (1998) 21 :87-92; Bardin CW (ed.), *Current Therapy in Endocrinology and Metabolism*, 6th Ed. (Mosby - Year Book, Inc., St. Louis, MO 1997); Chiasson J, et al., *Ann. Intern. Med.* (1994) 121 :928-935; Coniff R, et al., *Clin. Ther.* (1997) 19:16-26; Coniff R, et al., *Am. J. Med.* (1995) 98:443-451; and Iwamoto Y, et al, *Diabet. Med.* (1996) 13:365-370; Kwiterovich P, *Am. J. Cardiol.* (1998) 82(12A):3U-17U).

The additional therapeutic agent which can be used in combination with the compounds of invention include, but not limited to, anti-diabetic agents, anti-hyperglycemic agents, anti-hyperinsulinemic agents, anti-retinopathic agents, anti-neuropathic agents, anti-nephropathic agents, anti-atherosclerotic agents, anti-ischemic agents, anti-hypertensive agents, anti-obesity agents, anti-dyslipidemic agents, anti-hyperlipidemic agents, anti-hypertriglyceridemic agents, anti-hypercholesterolemic agents, anti-restenotic agents, anti-pancreatic agents, anti-metabolic syndrome agents, lipid lowering agents, anti-lipodystrophy agents, appetite suppressants, treatments for heart failure, treatments for peripheral arterial disease and anti-inflammatory agents.

A combination therapy may be used in modulating, including preventing, the onset of the symptoms or complications associated with diabetes or treating, preventing or reducing the risk of developing diabetes and its related symptoms, complications, and disorders, wherein the compounds of the invention can be effectively used in combination with, one or more additional therapeutic agents. One or more additional therapeutic agents for diabetes includes but not limited to insulin and insulin analogs; insulin secretagogues such as sulfonylureas and analogs; meglitinides; insulin sensitizers such as biguanides; thiazolidinediones (PPAR); PPAR alpha/gamma dual agonists; alpha-glucosidase inhibitors; dipeptidyl peptidase-IV (DPP4) inhibitors; glucagon-like peptide-1 (GLP-1) receptor agonists including glucagon-like peptides and its analogues, amylin agonists; glucagon antagonists; alpha2-antagonists and imidazolines; SGLT2 inhibitors; insulin signaling

agonists, insulin mimetics, aldose reductase inhibitors; 11-beta-hydroxysteroid dehydrogenase Type I inhibitors; RXR agonists; fatty acid oxidation inhibitors; beta-agonists; phosphodiesterase inhibitors, both cAMP and cGMP type; lipoxygenase inhibitors; PTP1B inhibitors; gluconeogenesis inhibitors; somatostatin and its analogs and antagonists; antilipolytic agents; glucose transport stimulating agents; glucose synthase kinase inhibitors; galanin receptor agonists; chemokine receptor antagonist; glucokinase activators; GDIR agonists; GPR40 modulators and other GPR119 modulators.

Insulin and its analogs include insulin from animal source and recombinant insulin and its derivatives, for e.g., short acting derivatives Lispro, aspart, glulisine and their protamine solutions and mixtures thereof, or the long acting derivatives, for e.g., glargine, detemir, and their modified formulations, for e.g., inhaled formulations comprising insulin, insulin via buccal route and the like. Sulfonylureas and analogs includes, but not limited to, chlorpropamide, glibenclamide, tolbutamide, tolazamide, acetohexamide, glipizide, glimepiride and the like. Meglitinides such as repaglinide, mitiglinide and the like. Biguanides includes, but not limited to, metformin, phenformin, buformin and the like. Thiazolidinediones for e.g., ciglitazone, pioglitazone, troglitazone, rosiglitazone and the like. PPAR-alpha agonists for e.g., fenofibrate, gemfibrozil and the like. PPAR alpha/gamma dual agonists, for e.g., muraglitazar, peliglitazar, and the like. Dipeptidyl peptidase-IV (DPP4) inhibitors includes saxagliptin, sitagliptin, vildagliptin, denagliptin and the like. Glucagon-like peptide-1 (GLP-1) receptor agonists, for e.g., Exenatide, Liraglutide, AVE0010, R1583, SUN E7001, GSK-716155 and Exendin-4 (PC-DACTM) and the like. Alpha2-antagonists and imidazolines include, but are not limited to, midaglizole, isaglidole, deriglidole, idazoxan, efaroxan, fluparoxan and the like. SGLT2 inhibitors include, but are not limited to, dapagliflozin, sergliflozin, canagliflozin, LX4211, BI-10773, BI-44847, ASP-1941, TS-071 and the like. Alpha-glucosidase inhibitors include, but are not limited to, acarbose, miglitol, voglibose and the like. Amylin analogs such as pramlintide and its derivatives. Other insulin secretagogues, for e.g., linoglriride, insulinotropin, exendin-4, N,N-dimethyl-N'-[2-(4-morpholinyl)phenyl]guanidine (E)-2-butenedioate salt (BTS-675820), (-)-N-(trans-4-isopropylcyclohexanecarbonyl)-D-phenylalanine (A-4166) and the like.

In another embodiment, the compound of Formula (I) may be used in combination therapy for treating obesity or obesity-related disorders, wherein the compound of Formula (I) can be effectively used in combination with one or more therapeutic agents having synergistic effects such as anti-obesity agents, anorectic agents, appetite suppressant and related agents. Diet and/or exercise can also have synergistic effects.

Anti-obesity agents include but are not limited to β -3 adrenoceptor agonist agents; gastrointestinal lipase inhibitors, leptins, cannabinoid-1 ("CB-1") receptor antagonists (such as rimonabant); PPAR delta agonists or partial agonists; dual PPAR alpha, PPAR delta agonists or partial agonists; dual PPAR delta, PPAR gamma agonists or partial agonists; pan PPAR agonists or partial agonists; neuropeptide Y; enterostatin; cholecystokinin; bombesin; amylin; histamine H3 receptors; serotonin 2C receptor agonists (5HT2c), dopamine D2 receptors; melanocyte stimulating hormone; corticotrophin releasing factor; galanin; gamma amino butyric acid (GABA), apolipoprotein-B secretion/microsomal triglyceride transfer protein (apo-B/MTP) inhibitors, MCR-4 agonists, MCR-4 antagonists; cholecystokinin-A (CCK-A) agonists, serotonin, galanin receptor antagonists; urocortin mimetics, CRF antagonists, CRF binding proteins and norepinephrine reuptake inhibitors (for example, sibutramine), sympathomimetic agents, β 3 adrenergic receptor agonists, dopamine agonists (for example, bromocriptine), melanocyte-stimulating hormone receptor analogs, melanin concentrating hormone antagonists, leptons (the OB protein), leptin analogues, leptin receptor agonists, galanin antagonists, lipase inhibitors (such as tetrahydrolipstatin, i.e., Orlistat), anorectic agents (such as a bombesin agonist), neuropeptide-Y antagonists, thyromimetic agents, dehydroepiandrosterone or an analogue thereof, glucocorticoid receptor agonists or antagonists, orexin receptor antagonists, urocortin binding protein antagonists, glucagon-like peptide-1 receptor agonists, ciliary neurotrophic factors (such as AXOKINE, human agouti-related proteins (AGRP), ghrelin receptor antagonists, histamine 3 receptor antagonists or reverse agonists, neuromedin U receptor agonists, noradrenergic anorectic agents (for example, phentermine, mazindol and the like) and appetite suppressants (for example, bupropion). Some of the compounds that can be used in combination with the compounds of the invention include, but are not limited to, phenylpropanolamine,

phentermine; orlistat, rimonabant, dexamphetamine, diethylpropion, mazindol, fenfluramine, dexfenfluramine, sibutramine, QNEXA (combination of phentermine and topiramate), Lorcaserin, CONTRAVE (combination of naltrexone and bupropion) and the like.

5 In a further embodiment, the compound of Formula (I) may be used in combination therapy for treating, preventing, and/or managing lipodystrophy including HIV protease associated lipodystrophy. Accordingly, the compound of Formula (I) may be used in combination with HIV protease inhibitors, including but not limited to, REYATAZ and KALETRA and the like.

10 In a further embodiment, the compound of Formula (I) may be used in combination therapy for modulating metabolic syndrome for e.g., treating metabolic syndrome and its related symptoms, complications and disorders, wherein the compound of Formula (I) may be effectively used in combination with, for example, the active agents discussed above for modulating or treating diabetes, obesity, hyperlipidemia, atherosclerosis, and/or their
15 respective related symptoms, complications and disorders. Metabolic Syndrome or "Syndrome X" is described in Ford et al., J. Am. Med. Assoc., 287:356-359 (2002) and Arbeeny et al., Curr. Med. Chem.-Imm., Endoc. & Metab. Agents, 1:1-24 (2001).

 In a further embodiment, the compound of Formula (I) may be used in combination therapy in modulating hyperlipidemia. Examples of suitable lipid lowering agents and anti-
20 atherosclerotic agents, for use in combination with the compounds of Formula (I) include one or more MTP/ApoB secretion inhibitors (e.g., dirlopatide, N-(2,2,2-trifluoroethyl)-9-[4-[4-[[[4'-(trifluoromethyl)[1,1'-biphenyl]-2-yl]carbonyl-]amino]-1-piperidiny]butyl]-9H-fluorene-9-carboxamide methane sulfonate, CP-741952, SLx-4090; HMG CoA reductase inhibitors (e.g., atorvastatin, rosuvastatin, simvastatin, pravastatin, lovastatin, fluvastatin);
25 squalene synthetase inhibitors, PPAR alpha agonists and fibric acid derivatives (e.g., fenofibrate, gemfibrozil); ACAT inhibitors; lipoxigenase inhibitors; cholesterol absorption inhibitors (e.g., ezetimibe); Ileal Na⁺/bile acid cotransporter inhibitors (e.g., compounds as disclosed in Drugs of the Future, 24:425-430 (1999); upregulators of LDL receptor activity (e.g., (3R)-3-[(13R)-13-hydroxy-10-oxotetradecyl]-5,7-dimethoxy-1(3H)-isobenzofuranone

and (3 α ,4 α ,5 α)-4-(2-propenyl)-cholestan-3-ol; bile acid sequestrants (e.g., WELCHOL, COLESTID, LOCHOLEST and QUESTRAN; and fibric acid derivatives, such as ATROMID, LOPID and TRICOT); cholesterol ester transfer protein inhibitors (e.g., torcetrapib and (2R)-3-{[3-(4-chloro-3-ethyl-phenoxy)-phenyl]-[[3-(1,1,2,2-tetrafluoroethoxy)phenyl]methyl]amino}-1,1,1-trifluoro-2-propanol); nicotinic acid and derivatives thereof (e.g., niacin, acipimox); PCSK9 inhibitors; LXR agonists; lipoxygenase inhibitors as disclosed by Sendobry et al., "Attenuation of diet-induced atherosclerosis in rabbits with a highly selective 15-lipoxygenase inhibitor lacking significant antioxidant properties", *Brit. J. Pharmacology*, 120:1199-1206 (1997), and Cornicelli et al., "15-Lipoxygenase and its Inhibition: A Novel Therapeutic Target for Vascular Disease", *Current Pharmaceutical Design*, 5:11-20 (1999)). Preferred hypolipidemic agents are pravastatin, lovastatin, simvastatin, atorvastatin, fluvastatin, cerivastatin, atavastatin, and rosuvastatin.

Examples of suitable anti-hypertensive agents for use in combination with the compounds of the invention include beta adrenergic blockers, calcium channel blockers (L-type and T-type; e.g., diltiazem, verapamil, nifedipine, amlodipine and mybefradil), diuretics (e.g., chlorothiazide, hydrochlorothiazide, flumethiazide, hydroflumethiazide, bendroflumethiazide, methylchlorothiazide, trichloromethiazide, polythiazide, benzthiazide, ethacrynic acid, tricyclic, chlorthalidone, furosemide, musolimine, bumetanide, triamtrenene, amiloride, spironolactone), renin inhibitors (e.g., aliskiren), ACE inhibitors (e.g., captopril, zofenopril, fosinopril, enalapril, ceranopril, cilazopril, delapril, pentopril, quinapril, ramipril, lisinopril), AT-1 receptor antagonists (e.g., losartan, irbesartan, valsartan), ET receptor antagonists, Dual ET/AII antagonist, neutral endopeptidase (NEP) inhibitors, vasopeptidase inhibitors (dual NEP-ACE inhibitors) (e.g., omapatrilat and gemopatrilat), nitrates, central alpha agonists (e.g., clonidine), alpha1 blockers (e.g., prazosine), arterial vasodilators (e.g., minoxidil), sympatolytics (e.g., reserpine), renin inhibitors (e.g., Aliskiren).

In a further embodiment, the compound of Formula (I) may be used in combination therapy with therapeutic agents showing therapeutic benefits of GPR 119 activity modulators derived from increasing levels of GIP and PPY.

In a further embodiment, the compound of Formula (I) may be used either alone or in combination with one or more therapeutically active drug for treating, preventing and/or managing a disease or disorder caused by low bone mass such as osteoporosis, and for increasing bone mass in an individual. WO 2007/120689A2 discloses that administration of a GPR119 agonist to an individual, such as by oral administration, can act at the GPR119 receptor to increase the GIP level in the individual. One or more therapeutically active drugs can be selected from the group consisting of calcium, vitamin D, estrogen, tibolone, selective estrogen receptor modulator (SERM; e.g., raloxifene, tamoxifen), biphosphonate (e.g., etidronate, alendronate, risedronate), calcitonin, 1 α -hydroxylated metabolite of vitamin D, fluoride, thiazide, anabolic steroids, ipriflavone, vitamin K, parathyroid hormone (PTH), strontium, statin, osteoprotegerin, EP4 receptor selective agonists, cannabinoid receptor type 2 (CB2) selective agonists, and p38 MAP kinase inhibitors. (World Health Organization Technical Report Series 921 (2003), Prevention and Management of Osteoporosis).

In a further embodiment, the compound of Formula (I) may be used either alone or in combination with one or more therapeutically active drug for treating, preventing and/or managing a disease or disorder associated with inflammation. Examples of suitable anti-inflammatory agents for use in combination with the compounds of the invention include, but are not limited to, NSAIDS, prednisone, acetaminophen, aspirin, codeine, fentanyl, ibuprofen, indomethacin, ketorolac, morphine, naproxen, phenacetin, piroxicam, sufentanyl, sunlindac, prednisolone, methylprednisolone, dexamethazone, flucatisone, betamethasone, hydrocortisone, and beclomethasone.

The above other therapeutic agents, when employed in combination with the compounds of the invention may be used, for example, in those amounts indicated in the Physicians' Desk Reference, or as otherwise determined by one of ordinary skill in the art.

In one embodiment, the compounds of the invention can be administered in therapeutically effective amounts in combination with one or more therapeutic active agents

(pharmaceutical combinations) as described above. Where compounds of the invention are administered in conjunction with other therapies, dosages of the co-administered compounds will of course vary, depending on the type of co-drug employed, on the specific drug employed, on the condition being treated and so forth. In general, compounds of the invention will be administered in therapeutically effective amounts via one or more acceptable modes known in the art, either alone or in combination with one or more therapeutic agents. A therapeutically effective amount can vary widely depending on the severity of the disease, the age and relative health of the subject, the potency of the compound used and other factors.

Method of treatment

In one embodiment, the invention provides a compound of Formula (I) and pharmaceutical compositions thereof that are useful in treating diseases, disorders or conditions associated with the modulation of GPR119 receptors which includes, but are not limited to, treating, preventing, managing and/or slowing the progression of diabetes and related conditions, microvascular complications associated with diabetes, macrovascular complications associated with diabetes, obesity, cardiovascular diseases, and metabolic syndrome and its component conditions.

The invention further provides methods of treating diseases, disorders syndromes or conditions associated with the modulation of the GPR119 receptor in a subject in need thereof by administering to the subject a therapeutically effective amount of a compound of Formula (I) or a pharmaceutical composition thereof.

In a further embodiment the diseases, disorders or conditions associated with the modulation of the GPR119 receptors include Type 2 diabetes, Type 1 diabetes, hyperglycemia, impaired glucose tolerance, insulin resistance, hyperinsulinemia, wound healing, retinopathy, neuropathy, nephropathy, obesity, Metabolic Syndrome, lipodystrophy including HIV protease associated lipodystrophy, lipid disorders, hypertension, dyslipidemia, hyperlipidemia, hypertriglyceridemia, hypercholesterolemia, low HDL, high LDL, vascular restenosis, peripheral arterial disease, and its sequela for example acute coronary syndrome,

myocardial infarction, angina pectoris, peripheral vascular disease, intermittent claudication, myocardial ischemia, stroke and heart failure.

In a further embodiment the diseases, disorders or conditions associated with the modulation of GPR119 receptor includes inflammatory diseases such as psoriasis, rheumatoid arthritis and osteoarthritis, inflammatory bowel diseases, atherosclerosis and bone diseases including osteoporosis.

General Methods of Preparation

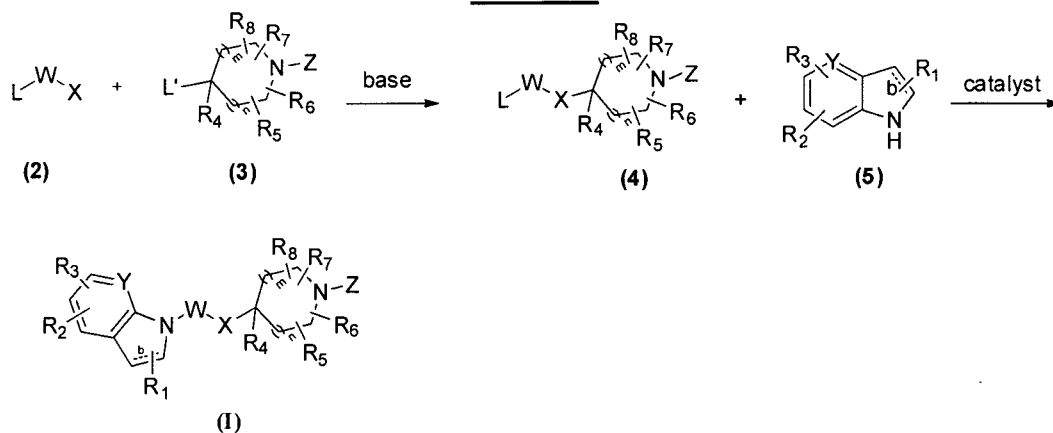
The compounds described herein may be prepared by techniques known in the art. In addition, the compounds described herein may be prepared by following the reaction sequence as depicted in Schemes 1 to 3. Further, in the following schemes, where specific bases, acids, reagents, solvents, coupling agents, etc., are mentioned, it is understood that other bases, acids, reagents, solvents, coupling agents etc., known in the art may also be used and are therefore included within the scope of the present invention. Variations in reaction conditions, for example, temperature and/or duration of the reaction, which may be used as known in the art are also within the scope of the present invention. All the isomers of the compounds described are these schemes, unless otherwise specified, are also encompassed within the scope of this invention.

Compounds of Formula (I) may be prepared as shown in the following reaction schemes and the brief description thereof. Exemplary reagents and procedures for these reactions appear hereinafter and in the working examples. Protection and deprotection, in the schemes below, may be carried out by procedures generally known in the art (for example, Greene, T. W. and Wuts, P.G.M., Protecting Groups in Organic Synthesis, 3rd Edition, 1999 [Wiley]).

As shown in Scheme 1 wherein $\frac{b}{\text{---}}$, W, X, Z, R₁, R₂, R₃, R₄, R₅, R₆, R₇, R₈, 'n' and 'm' are as defined herein above, the compounds of formula (I) may be obtained by treating substituted compound (2) where L is a leaving group, with a piperidine compound of formula (3), where L' is a leaving group, in the presence of a base to give a compound of formula (4).

This compound of formula (4) is further treated with the compound of formula (5) in the presence of palladium catalyst to give a compound of formula (I).

Scheme 1

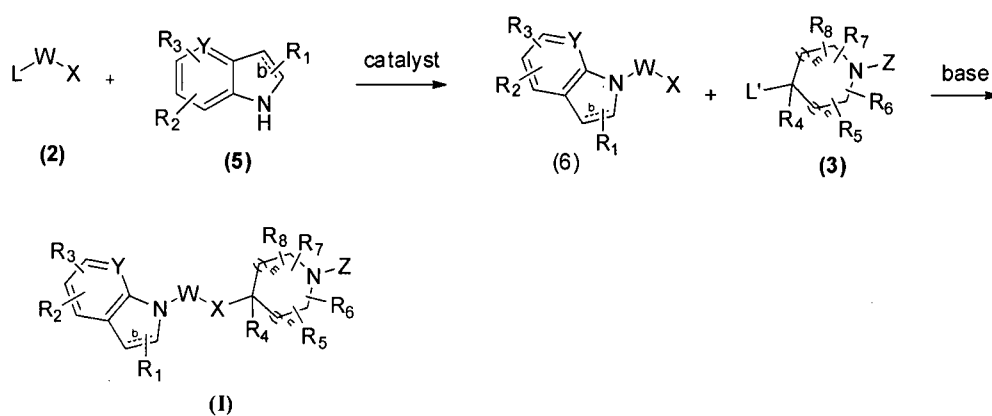


5

Alternatively, compounds of formula (I) may also be prepared by following the procedure as depicted in Scheme 2 wherein $\frac{b}{\text{---}}$, $W, X, Z, R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8$, 'n' and 'm' are as defined herein above. The compound (2) can be reacted with the compound of formula (5) in the presence of palladium catalyst to give a compound of formula (6), which on further reaction with a compound of formula (3) in the presence of a base results in a compound of formula (I).

10

Scheme 2



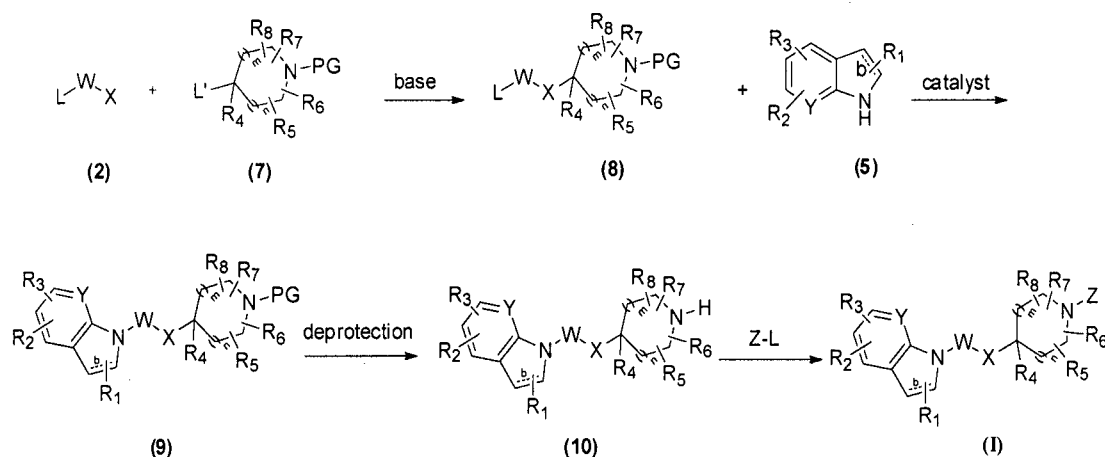
15

Another alternative approach to prepare the compound of formula (I), wherein $\frac{b}{\text{---}}$, $W, X, Z, R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8$, 'n' and 'm' are as defined herein above, is depicted in Scheme

3. A compound of formula (2) can be reacted with a piperidine compound of formula (7) in the presence of a base to give a compound of formula (8). This compound of formula (8), where PG is a protecting group, is further treated with the compound of formula (5) in presence of palladium catalyst to give a compound of formula (9). Deprotection of intermediate (9) can be carried out with appropriate reagents known to a person skilled in the art of organic synthesis.

The deprotected compound of formula (10) is then treated with Z-L where L is a leaving group such as halide, mesylate, triflate etc., by methods known in the art of organic synthesis to give compounds of formula (I).

Scheme 3



Experimental

Some of the representative examples of the present invention were prepared by following one or more reaction schemes as described above.

The invention is further illustrated by the following examples which are provided merely to be exemplary of the invention and do not limit the scope of the invention. The examples set forth below demonstrate the synthetic procedures for the preparation of the relative compounds. Certain modifications and equivalents will be apparent to those skilled in the art and are intended to be included within the scope of the invention. The aforementioned patents and patent applications are incorporated herein by reference.

Nomenclature of the compounds of the invention is according to ChemBioDraw version 12. Structures of the intermediates as well as the final compounds were confirmed by spectral data.

Intermediate-1: N-(1H-indol-5-yl)pivalamide

- 5 To a stirred solution of 5-Indole amine (0.6 g, 4.54 mmol) in anhydrous dichloromethane (15 mL), triethylamine (1.3 mL, 9.0 mmol) and pivaloyl chloride (0.45 mL, 5.4 mmol) were added and stirred at room temperature for 2 h. The reaction mixture was diluted with water; the organic layer was separated and concentrated *in vacuo*. The resultant residue was purified by flash column chromatography to give N-(1H-indol-5-yl)pivalamide (0.88g, 89%); MS: 217.0 (M+1).

Intermediate-2: N-(1H-indol-5-yl)cyclopropanecarboxamide

The title compound was prepared by following the similar procedure as described in Intermediate-1, using 1H-indol-5-amine and cyclopropanecarbonyl chloride; MS: 201.1 (M+1).

- 15 **Intermediate-3:** N-((1H-indol-5-yl) methyl) isobutyramide

The title compound was prepared by following the similar procedure as described in intermediate-1, using (1H-indol-5-yl) methanamine and isobutyryl chloride (169 mg, 99 %); MS: 217.0 (M+1).

Intermediate-4: (2-chloropyridin-4-yl)methyl methanesulfonate.

- 20 To a stirred solution of (2-chloropyridin-4-yl)methanol (0.500 g, 3.496 mmol) in dichloromethane (15 mL), triethylamine (0.424 g, 4.195 mmol) and methanesulfonylchloride (0.440g, 3.846 mmol) were added at 0°C and stirred at room temperature for 2-3 h. The reaction was quenched with water and extracted with dichloromethane. The organic layer was concentrated *in vacuo* to give (2-chloropyridin-4-yl)methyl methanesulfonate (0.530 g, 68 %); MS: 221.9 (M+1).

Intermediate-5: *tert*-butyl 4-((6-bromopyridin-3-yl)amino)piperidine-1-carboxylate

To a mixture of *tert*-butyl 4-oxopiperidine-1-carboxylate (1.15 g, 5.78 mmol) and 6-bromopyridin-3-amine (0.5 g, 2.89 mmol) in dichloroethane (20 mL), acetic acid (8 mL, 2.89 mmol) was added and the contents were stirred at room temperature for 3 h. Sodium

triacetoxy borohydride (1.225 g, 5.78 mmol) was added and the contents were stirred at room temperature for 12 h. The reaction was diluted with ethyl acetate and washed with brine; the organic layer was separated and concentrated *in vacuo*. The resulting residue was purified by flash column chromatography to give *tert*-butyl 4-((6-bromopyridin-3-yl)amino)piperidine-1-carboxylate (0.638g, 62%); MS: 357.1(M+1)

Intermediate-6: *tert*-Butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate.

To a mixture of 4-hydroxy-piperidine-1-carboxylic acid *tert*-butyl ester (15.5 g, 77 mmol), 2-Chloro-5-hydroxy-pyridine (9.9g, 77mmol) and triphenylphosphine (24.24 g, 92.4 mmol) in THF, diisopropylazodicarboxylate (18.6 g, 92.4 mmol) was added at 0°C and stirred for 18 h.

The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo*, resulting residue was purified by flash column chromatography to give *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (11g, 45%); MS: 335.2 (M+23).

Intermediate-7: *cis*(±)-*tert*-Butyl-4-((6-chloropyridin-3-yl)oxy)-3-fluoropiperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-1, using 6-chloropyridin-3-ol and *trans*(±)-*tert*-butyl 3-fluoro-4-hydroxypiperidine-1-carboxylate (0.490 g, 48%); MS: 332.2 (M+1).

Intermediate-8: *tert*-Butyl-3-((6-chloropyridin-3-yl)oxy)pyrrolidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in intermediate-6, using 6-chloropyridin-3-ol and *tert*-butyl 3-hydroxypyrrolidine-1-carboxylate; MS: 299.0 (M+1)

Intermediate-9: *tert*-Butyl-3-((6-chloropyridin-3-yl)oxy)azetidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-6, using 6-chloropyridin-3-ol and *tert*-butyl 3-hydroxyazetidine-1-carboxylate (0.319 g, 64.7 % yield); MS: 284.9 (M+1).

Intermediate-10: N-(1H-indol-5-yl)isobutyramide

To a stirred solution of 5-Indole amine (0.5 g, 3.78 mmol), 1-ethyl-3-(3-dimethylaminopropyl)carbodiimidehydrochloride (1.45g, 7.56 mmol), 1-hydroxybenzotriazole

(0.578 g, 3.78 mmol) in anhydrous DMF (25 mL), triethylamine (1.0 mL, 7.5 mmol) and isobutyric acid (0.31 mL, 3.4 mmol) were added and stirred at room temperature for 12 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to give N-(1H-indol-5-yl)isobutyramide (0.596g, 77.8%); MS: 203.1 (M+1)

Intermediate-11: N-Cyclopropyl-1H-indole-5-carboxamide

The title compound was prepared by following the similar procedure as described in Intermediate-10, using 1H-indole-5-carboxylic acid and cyclopropanamine (0.34 g, 92%); MS: 201.1 (M+1).

Intermediate-12: N, N-dimethyl-1H-indole-5-carboxamide.

The title compound was prepared by following the similar procedure as described in Intermediate-10, using 1H-indole-5-carboxylic acid and dimethylamine (0.330 g, 56.6 %); MS: 189.1 (M+1).

Intermediate-13: N, N-dimethylindoline-5-carboxamide.

The title compound was prepared by following the similar procedure as described in Intermediate-10, using indoline-5-carboxylic acid and dimethylamine; MS: 191.1 (M+1).

Intermediate-14: N-methyl-1H-indole-5-carboxamide.

The title compound was prepared by following the similar procedure as described in Intermediate-10, using 1H-indole-5-carboxylic acid and methylamine (0.320 g, 59 %); MS: 175(M+1).

Intermediate-15: N-ethyl-1H-indole-5-carboxamide.

The title compound was prepared by following the similar procedure as described in Intermediate-10, using 1H-indole-5-carboxylic acid and ethylamine; MS: 189.1(M+1).

Intermediate-16: N-isopropyl-1H-indole-5-carboxamide

The title compound was prepared by following the similar procedure as described in Intermediate-10, using 1H-indole-5-carboxylic acid and propan-2-amine (0.420 g, 67%).

Intermediate-17: 5-(Isopropylsulfonyl)-1H-indole

The title compound was prepared by following the similar procedure as described in Intermediate-20, using 5-iodo-1H-indole (0.610 g, 66%); MS: 224 (M+1)

Intermediate-18: (1H-indol-5-yl)(pyrrolidin-1-yl)methanone.

The title compound was prepared by following the similar procedure as described in
5 Intermediate-10, using 1H-indole-5-carboxylic acid and pyrrolidine (0.210 g, 70%).

Intermediate-19: N-(2-hydroxyethyl)-1H-indole-5-carboxamide.

The title compound was prepared by following the similar procedure as described in Intermediate-10, using 1H-indole-5-carboxylic acid and 2-aminoethanol; MS: 205 (M+1).

Intermediate-20: 3, 3-difluoro-5-(methylsulfonyl)indolin-2-one

10 To a stirred solution of 5-bromo-3,3-difluoroindolin-2-one (5.0 g, 20 mmol) in DMSO (50 mL), sodium methanesulfinate (3.0 g, 30 mmol), copper(I) trifluoromethane- sulfonate benzene complex (1.52 g, 3.022 mmol) and N,N'-dimethylethylenediamine (0.33 mL, 3.022 mmol) were added and stirred at 120°C for 14 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo*
15 and resulting residue was purified by flash column chromatography to give the title product (2.9g, 58.2%); MS: 247.9 (M+1).

Intermediate-21: 5-(Methylsulfonyl)-1H-indole

The title compound was prepared by following the similar procedure as described in Intermediate-20, using 5-Iodo-1H-indole. (9.200g, 57%); MS: 196 (M+1).

20 **Intermediate-22:** 7-Fluoro-5-(methylsulfonyl)-1H-indole

The title compound was prepared by following the similar procedure as described in Intermediate-20 using 7-fluoro-5-iodo-1H-indole (0.109g, 67%); MS: 214 (M+1).

Intermediate-23: 3-Methyl-5-(methylsulfonyl)-1H-indole.

The title compound was prepared by following the similar procedure as described in
25 Intermediate-20 using 5-bromo-3-methyl-1H-indole (0.227 g, 57 %); MS: 210 (M+1).

Intermediate-24: 5-(Cyclopropylsulfonyl)-1H-indole

The title compound was prepared by following the similar procedure as described in Intermediate-20 using 5-iodo-1H-indole (0.400 g, 44%); MS: 222 (M+1).

Intermediate-25: 5-(Methylsulfonyl)-1H-pyrrolo[2,3-b]pyridine.

The title compound was prepared by following the similar procedure as described in Intermediate-20 using 5-bromo-1H-pyrrolo[2,3-b]pyridine; MS: 196.02 (M+1).

Intermediate-26: 5-(Methylsulfonyl)indoline.

The title compound was prepared by following the similar procedure as described in Intermediate-20, using 5-iodoindoline (0.630, 87%); MS: 198 (M+1).

Intermediate-27: *tert*-Butyl 5-(2-oxopyrrolidin-1-yl)-1H-indole-1-carboxylate

To a stirred mixture of *tert*-butyl 5-iodo-1H-indole-1-carboxylate (1.5 g, 4.3 mmol), Xant Phos (0.25 g, 0.43 mmol) and 2-pyrrolidinone (0.74 g, 8.7 mmol) in anhydrous dioxane (15 mL), cesium carbonate (2.8 g, 8.7 mmol) was added and the contents were stirred for 5 minutes. Tris(dibenzylideneacetone)-dipalladium (0)chloroform adduct (0.452 g, 0.437 mmol) was added and the reaction mixture was stirred at 110-115°C for 6 h. The reaction mixture was cooled to room temperature and filtered over celite and filtrate was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the residue was purified by flash column chromatography to yield *tert*-butyl 5-(2-oxopyrrolidin-1-yl)-1H-indole-1-carboxylate (0.80 g, 61%); MS: 301 (M+1).

Intermediate-28: Ethyl-1-(5-((1-(*tert*-butoxycarbonyl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-27 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate and ethyl 1H-indole-5-carboxylate (0.21g, 36%); MS: 466.2 (M+1).

Intermediate-29: *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)methyl)piperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-6 using *tert*-butyl 4-(hydroxymethyl)piperidine-1-carboxylate and 6-chloropyridin-3-ol (0.10g, 54%); MS: 271 (M-56).

Intermediate-30: *tert*-Butyl 4-((6-(5-pivalamido-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-27, using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate and N-(1H-indol-5-yl)pivalamide; MS: 437.6 (M-56).

Intermediate-31: *tert*-Butyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)amino)-piperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-27 using *tert*-butyl 4-((6-bromopyridin-3-yl)amino)piperidine-1-carboxylate and 5-(methylsulfonyl)-1H-indole; MS: 415.2 (M-56).

Intermediate-32: *tert*-Butyl 4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)amino)-piperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-27 using *tert*-butyl 4-((6-bromopyridin-3-yl)amino)piperidine-1-carboxylate and 5-(methyl-sulfonyl)indoline; MS: 473.3 (M+1).

Intermediate-33: *tert*-Butyl 3-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidine-1-carboxylate

The title compound was prepared by following the similar procedure as described in Intermediate-27 using *tert*-butyl 3-((6-chloropyridin-3-yl)oxy)pyrrolidine-1-carboxylate and N-(2-hydroxyethyl)-1H-indole-5-carboxamide; MS: 466.5 (M⁺)

Intermediate-34: 1-(2-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-amine.

The title compound was prepared by following the similar procedure as described in Intermediate-27 using 4-bromo-2-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)thiazole and *tert*-butyl-1H-indol-5-ylcarbamate (0.092g, 40 %); MS: 421.2 (M+1).

Intermediate-35: *tert*-Butyl 4-((4-(5-amino-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate:

The title compound was prepared by following the similar procedure as described in Intermediate-27 using *tert*-butyl 4-((4-bromothiazol-2-yl)oxy)piperidine-1-carboxylate and *tert*-butyl 1H-indol-5-ylcarbamate; MS: 415.1 (M+1).

Intermediate-36: 4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carbonitrile.

To a stirred solution of *tert*-butyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate (0.3 g, 0.63 mmol) in dichloromethane (5 mL) trifluoroacetic acid

(2.0 mL) was added at 0°C and stirred at room temperature for 2-3h. The solvent was removed *in vacuo* and the resulting residue was dissolved in dichloromethane (5 mL), triethylamine (0.193 g, 1.91 mmol) and the cyanogen bromide (0.101 g, 0.95 mmol) were added at 0°C and stirred at room temperature for 2-3h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the residue was purified by flash column chromatography to give 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carbonitrile (0.160g, 63%); MS: 397 (M+1).

Intermediate-37: 4-((6-(5-(Isopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carbonitrile.

The title compound was prepared by following the similar procedure as described in Intermediate-36 using *tert*-butyl 4-((6-(5-(isopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate; MS: 425.3 (M+1).

Intermediate-38: 4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)methoxy)piperidine-1-carbonitrile

The title compound was prepared by following the similar procedure as described in Intermediate-36 using *tert*-butyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)methoxy)piperidine-1-carboxylate (0.18g, 93%); MS: 411.2 (M+1).

Intermediate-39: 4-((6-(5-(Methylsulfonyl)indolin-1-yl)pyridin-3-yl)methoxy)piperidine-1-carbonitrile

The title compound was prepared by following the similar procedure as described in Intermediate-36 using *tert*-butyl 4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)methoxy)piperidine-1-carboxylate (0.16 g, 79%); MS: 413.2 (M+1).

Intermediate-40: 4-((6-(5-(Methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)piperidine-1-carbonitrile.

The title compound was prepared by following the similar procedure as described in Intermediate-36 using *tert*-butyl 4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate (0.070 g, 83 %); MS: 399.2 (M+1).

Intermediate-41: 4-Hydroxypiperidine-1-carbonitrile.

The title compound was prepared by following the described in Intermediate-36 using *tert*-butyl 4-hydroxypiperidine-1-carboxylate (0.340 g, 54%).

Intermediate-42: *tert*-Butyl 4-((6-chloropyridin-2-yl)oxy)piperidine-1-carboxylate.

To a stirred solution of 4-Hydroxy-piperidine-1-carboxylic acid *tert*-butyl ester (1.63 g, 8.1 mmol) in THF (20 mL), NaH (0.40 g, 10.1 mmol)) was added and stirred at 60 °C for 0.5 h. 2,6-dichloropyridine (1.0 g, 6.75 mmol) was added and stirred at room temperature for 3-4h. The reaction was quenched with water and extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to yield *tert*-butyl 4-((6-chloropyridin-2-yl)oxy)piperidine-1-carboxylate as a pale yellow solid (0.98g, 48 %); MS: 335.1 (M+23)

Intermediate-43: *tert*-Butyl 4-((6-chloropyridin-3-yl) methoxy) piperidine-1-carboxylate

The title compound was prepared by following the similar procedure as described in Intermediate-42 using 4-hydroxy-piperidine-1-carboxylic acid *tert*-butyl ester and (6-chloropyridin-3-yl)methyl methanesulfonate; MS: 227 (M-100).

Intermediate-44: *tert*-Butyl 4-((2-chloropyridin-4-yl)methoxy)piperidine-1-carboxylate

The title compound was prepared by following the similar procedure as described in Intermediate-42 using (2-chloropyridin-4-yl)methylmethanesulfonate (Intermediate-4) and 4-hydroxy-piperidine-1-carboxylic acid *tert*-butyl ester (0.215 g, 29 %); MS: 327.2 (M+1).

Intermediate-45: 4-Bromo-2-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)thiazole.

The title compound was prepared by following the similar procedure as described in Intermediate-42 using 1-(5-ethylpyrazin-2-yl)piperidin-4-ol and 2,4-dibromothiazole (0.480 g, 54 %); MS: 369.2 (M+1).

Intermediate-46: *tert*-Butyl 4-((4-bromothiazol-2-yl)oxy)piperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-42 using *tert*-butyl 4-hydroxypiperidine-1-carboxylate and 2,4-dibromothiazole (0.1g, 25 %); MS: 363.2 (M+1).

Intermediate-47: *tert*-Butyl 4-(((4-bromothiazol-2-yl)oxy)methyl)piperidine-1-carboxylate.

The title compound was prepared by following the similar procedure as described in Intermediate-42, using *tert*-butyl 4-(hydroxymethyl)piperidine-1-carboxylate and 2,4-dibromothiazole (0.124 g, 39%); MS: 377.3 (M+1).

Intermediate-48: (6-Chloropyridin-3-yl)methyl methanesulfonate

- 5 The title compound was prepared by following the similar procedure as described in Intermediate-42 using (6-chloropyridin-3-yl)methanol; MS: 222 (M+1).

Intermediate-49: 1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-ol

- 10 To a stirred solution of 4-hydroxypiperidine-1-carbonitrile (0.4 g, 3.1 mmol) in THF (10 mL), (E)-N'-hydroxyisobutyrimidamide (0.35 g, 35 mmol) and ZnCl₂ (1M solution in THF) (4.7 mL) were added and stirred at room temperature for 10h. The reaction mixture was concentrated *in vacuo* and the resulting crude was dissolved in 4N HCl in ethanol-water (1:1) and stirred at 60-70°C for 2-3 h. The reaction was quenched by saturated NaHCO₃ and the organic layer was separated and concentrated. The residue on column chromatography gave the title compound. (0.280 g, 41.8%)

- 15 **Intermediate-50:** N-(Indolin-5-yl)isobutyramide

- To a stirred solution of N-(1H-indol-5-yl)isobutyramide (0.42g, 2.9mmol) in acetic acid (10 mL), sodium cyanoborohydride (0.29 g, 4.6 mmol) was added at 0°C, and the reaction mixture was stirred at room temperature for 2-3 h. The reaction was quenched with water and neutralized by 50% NaOH solution, extracted with diethyl ether. The organic layer was
20 separated and concentrated *in vacuo* to give N-(indolin-5-yl)isobutyramide (0.122g, 28.5%); MS: 205.1 (M+1).

Intermediate-51: 5-Iodoindoline.

The title compound was prepared by following the similar procedure as described in Intermediate-50 using 5-iodo-1H-indole. (0.9g, 89%); MS: 245.9 (M+1).

- 25 **Intermediate-52:** Ethyl 1H-indol-5-ylcarbamate

To a stirred solution of 1H-indol-5-amine (11g, 83.2mmol) and triethyl amine (25.22 g, 250 mmol) in dichloromethane (110 mL) at -10°C, ethyl-chloro-formate (13.5g 124.8 mmol) was added dropwise and stirred at 0°C for 2-3 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated in *vacuo* and

the resultant residue was purified by flash column chromatography to give ethyl-1H-indol-5-ylcarbamate (5.980 g, 35.2%); MS: 205 (M+1).

Intermediate-53: 1-(4-(((6-Chloropyridin-3-yl)oxy)piperidin-1-yl)-2-methylpropan-2-ol

To a stirred solution of *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (1.0 g, 3.2 mmol) in dichloromethane (10 mL), trifluoroacetic acid (3 mL) was added at 0°C and stirred for 3h. The reaction mixture was concentrated *in vacuo* and resultant residue was dissolved in MeOH (5 mL), 2, 2-dimethyloxirane (0.246 g, 3.2 mmol) was added and stirred at room temperature for 10-12 h. The reaction mixture was concentrated *in vacuo* to give the title product (0.775, 85%); MS: 285.0 (M+1).

Intermediate-54: 2-Chloro-5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridine.

To a stirred solution 1-(4-(((6-chloropyridin-3-yl)oxy)piperidin-1-yl)-2-methylpropan-2-ol (0.775 g, 2.7 mmol) in dichloromethane (15 mL), deoxofluor (0.71 mL, 3.2 mmol) was added and stirred for 3h. The reaction was quenched by saturated NaHCO₃ and the mixture was extracted with dichloromethane. The organic layer was separated, concentrated *in vacuo* and the resulting residue was purified by flash column chromatography to yield 2-chloro-5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridine; MS: 287.02 (M+1)

Intermediate-55: 5-Bromo-3,3-difluoroindolin-2-one

To an ice-cooled solution of 5-Bromo isatin (7.0 g, 31.0 mmol) in dichloromethane (200 mL) in acetonitrile (20 mL), diethylaminosulfur trifluoride (10.2 mL, 77.4 mmol) was added and stirred at room temperature for 20 h. The reaction mixture was cooled to 0°C; methanol (15 mL) was added dropwise. Water (100 mL) was added to the reaction mixture and the organic layer was extracted with dichloromethane. The organic layer was concentrated *in vacuo* and the resulting residue was purified by flash column chromatography to yield title compound (6.1g, 79.4%); MS: 249.53 (M+1).

Intermediate-56: 3-Fluoro-5-(methylsulfonyl)-1H-indole

To a stirring solution of 3, 3-difluoro-5-(methylsulfonyl)indolin-2-one (1.0 g, 4.0 mmol) in anhydrous THF (25 mL), a solution of "BH₂F.THF" (nominal concentration 1.3 M, 13ml) was added at 0 °C. The reaction mixture was stirred at room temperature for 16 h. The reaction mixture was brought to 0°C, aqueous HCl (3 M, 13 mL) was added dropwise. The

reaction mixture was subsequently neutralized with aqueous NaOH (2.5M). The mixture was extracted with ethyl acetate, separated and concentrated *in vacuo*. The residue was purified by flash column chromatography to give the title compound (0.450g, 52.3%); MS: 213.9 (M+1).

5 **Intermediate-57:** 5-(1H-tetrazol-1-yl)-1H-indole

To a stirring solution of 1H-indol-5-amine (0.6 g, 4.52 mmol) in acetic acid (9 mL), sodium azide (0.42 g, 6.2 mmol) and triethoxy ethane (1.0 mL, 6.2 mmol) were added and stirred at 100 °C for 3h. The reaction was brought to room temperature and stirred for 10-12h. The reaction was quenched with saturated NaHCO₃ and the mixture was extracted with ethyl acetate. The organic layer was separated, washed with brine, dried over anhydrous NaSO₄ and concentrated *in vacuo*. Resultant residue was purified by flash column chromatography to yield 5-(1H-tetrazol-1-yl)-1H-indole. (0.174g, 21%); MS: 186 (M+1).

Intermediate-58: 5-(1H-1,2,4-triazol-1-yl)-1H-indole.

To a stirred solution of 5-iodo-1H-indole (2.0 g, 8.2 mmol), 1H-1,2,4-triazole (0.511 g, 7.4 mmol), CuI (0.15 g, 0.82 mmol), K₂CO₃ (2.27 g, 16.46 mmol) and L-proline (0.511 g, 7.4 mmol) in DMF (20 mL), N,N'-dimethylethylenediamine (2.375 g 16.46 mmol) was added and stirred at 120°C for 2-3 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was separated, concentrated *in vacuo* and the residue was purified by flash column chromatography to give 5-(1H-1,2,4-triazol-1-yl)-1H-indole (0.790g, 52%); MS: 185 (M+1).

Intermediate-59: 3-(1H-indol-5-yl)oxazolidin-2-one

The title compound was prepared by following the similar procedure as described in Intermediate-58 (0.348 g, 41%); MS: 202.8 (M+1).

Intermediate-60: *tert*-Butyl-4-((trimethylsilyl)oxy)-5,6-dihydropyridine-1(2H)-carboxylate.

To a stirred solution of *tert*-butyl 4-oxopiperidine-1-carboxylate (5.0 g, 25.0 mmol) in anhydrous DMF (50 mL), trimethylsilyl chloride (3 mL, 30.1 mmol) and triethylamine (8.3 mL, 60.2 mmol) were added at 80 °C and stirred for 10-12 h. The reaction mixture was cooled to room temperature, diluted with hexane and washed with saturated NaHCO₃. Combined organic layers were dried over anhydrous Na₂SO₄, filtered and concentrated *in*

vacuo and the residue was purified by flash column chromatography to give *tert*-butyl 4-((trimethylsilyl)oxy)-5,6-dihydropyridine-1(2H)-carboxylate as a pale yellow oil (2.16 g, 32%); MS: 271 (M^+).

Intermediate-61: *tert*-Butyl-3-fluoro-4-oxopiperidine-1-carboxylate.

- 5 To a stirred solution of *tert*-butyl 4-((trimethylsilyl)oxy)-5,6-dihydropyridine-1(2H)-carboxylate (2.15 g, 7.92 mmol) in anhydrous acetonitrile (20 mL), selectfluor (3.08 g, 8.71 mmol) was added and stirred at room temperature for 1-2 h. The reaction mixture was diluted with ethyl acetate and washed with saturated NaHCO_3 solution. The organic layer was separated, concentrated *in vacuo* and the residue was purified by flash column
10 chromatography to yield *tert*-butyl 3-fluoro-4-oxopiperidine-1-carboxylate as a white solid (1.34 g, 78%). ^1H NMR (400 MHz, CDCl_3) δ : 1.50 (s, 9H), 2.49-2.63 (m, 2H), 3.20-3.27 (m, 2H), 4.11-4.21 (m, 2H), 4.76-4.80 (m, 0.5H), 4.88-4.92 (m, 0.5H).

Intermediate-62: *cis* ($\pm$) and *trans* ($\pm$) -*tert*-Butyl-3-fluoro-4-hydroxypiperidine-1-carboxylate.

- 15 To a stirred solution of *tert*-butyl-3-fluoro-4-oxopiperidine-1-carboxylate (1.3 g, 6.0 mmol) in methanol (15mL), NaBH_4 (0.29 g, 7.7 mmol) was added at 0°C and stirred for 2-3 h. Methanol was removed *in vacuo* and the residue was diluted with ethyl acetate and washed with water. The organic layer was separated, concentrated *in vacuo* and the residue was purified by flash column chromatography to give *cis*($\pm$)-*tert*-butyl 3-fluoro-4-
20 hydroxypiperidine-1-carboxylate (0.850 g, 65%) and *trans*($\pm$)-*tert*-butyl 3-fluoro-4-hydroxypiperidine-1-carboxylate (0.315 g, 24%); MS: 242.1 ($M+23$).

Intermediate-63: *trans*($\pm$)-*tert*-butyl-4-((6-chloropyridin-3-yl)oxy)-3-fluoropiperidine-1-carboxylate.

- The title compound was prepared by following the similar procedure as described in
25 Intermediate-6 using 6-chloropyridin-3-ol and *cis*($\pm$) *tert*-butyl-3-fluoro-4-hydroxypiperidine-1-carboxylate; MS: 353.2 ($M+23$).

Intermediate-64: N-isopropylindoline-5-carboxamide.

The title compound was prepared by following the similar procedure as described in Intermediate-10 using indoline-5-carboxylic acid and propan-2-amine (0.315 g, 31%); MS: 205 (M+1).

Intermediate-65: *tert*-Butyl-4-((5-bromopyridin-2-yl)oxy)piperidine-1-carboxylate

- 5 The title compound was prepared by following the similar procedure as described in Intermediate-6 using 5-bromopyridin-2-ol and *tert*-butyl 4-hydroxypiperidine-1-carboxylate (1.49g, 56%); MS: 357 (M⁺).

Intermediate-66: *tert*-Butyl-5-(pyrrolidin-1-yl)-1H-indole-1-carboxylate

- 10 To a stirred solution of pyrrolidine (1.43 mL, 17.47 mmol) in DMSO (15 mL), CuI (33.3 mg, 0.174 mmol), L-proline (0.20 g, 1.75 mmol) and cesium carbonate (1.14 mg, 3.5 mmol) were added and stirred at 120°C for 18 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was separated, washed with brine and dried over anhydrous sodium sulphate. The organic layer was concentrated *in vacuo* and the resulting residue was triturated with diethyl ether to give the title compound. (0.41g, 15 82%); MS: 287.2 (M+1).

Intermediate-67: 2-(1H-indol-5-yl)oxazole.

- To a stirred solution oxazole (0.1 g, 1.45 mmol) in anhydrous THF (3 mL), n-BuLi (1.6 mL, 1.6 mmol) was added at -78°C and stirred for 30 minutes. The reaction mixture was brought to 0 °C, ZnCl₂.Et₂O (4.35 mL, 4.35mmol) was added and stirred for 1 h. 5-iodo-1H-indole (0.352 g, 1.45 mmol) and (Ph₃P)PdCl₂ (0.050 g, 0.072 mmol) were added and stirred at 80°C 20 for 1h. The reaction mixture was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the residue was purified by flash column chromatography to give 2-(1H-indol-5-yl)oxazole (0.060 g, 22%); MS: 185.0 (M+1).

- 25 **Intermediate-68:** N-(2, 2, 2-trifluoroethyl)-1H-indole-5-carboxamide

The title compound was prepared by following the similar procedure as described in Intermediate-10 using 1H-indole-5-carboxylic acid and 2,2,2-trifluoroethanamine (0.93 g, 62%); MS: 243 (M⁺).

Intermediate-69: *tert*-Butyl 1H-indol-5-ylcarbamate

To a stirred solution 1H-indol-5-amine (0.5 g, 3.78 mmol) in dichloromethane (10 mL), triethylamine (0.95g, 9.4 mmol) and di-*tert*-butyl dicarbonate (0.908 g, 4.166 mmol) were added at 0°C. The reaction contents were stirred at room temperature for 4 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the residue was purified by flash column chromatography to give *tert*-butyl 1H-indol-5-ylcarbamate (0.380 g, 43%); MS: 233.5 (M+1).

Intermediate-70: 1-(2-((1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-amine

The title compound was prepared by following the similar procedure as described in Intermediate-17 using 5-(4-((4-bromothiazol-2-yl)oxy)piperidin-1-yl)-3-isopropyl-1,2,4-oxadiazole and *tert*-butyl 1H-indol-5-ylcarbamate.

Intermediate-71: 2-chloro-1-(pyrrolidin-1-yl)ethanone.

To an ice-cooled solution of pyrrolidine (0.4 g, 5.62 mmol) in dichloromethane (4 mL), triethylamine (1.176 mL, 8.44 mmol) and chloroacetyl chloride (0.451 mL, 5.62 mmol) was added. The resulting mixture was stirred at room temperature for 2 h. The reaction mixture was diluted with dichloromethane and washed with water. The organic layer was concentrated *in vacuo* and residue was purified by column chromatography to give title compound (0.5g, 60.2%); MS: 147.10 (M⁺).

Intermediate-72: 5-(4-((4-Bromothiazol-2-yl)oxy)piperidin-1-yl)-3-isopropyl-1,2,4-oxadiazole.

The title compound was prepared by following the similar procedure as described in Intermediate-42, using 1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-ol and 2,4-dibromothiazole

Intermediate-73: anti-*tert*-Butyl-9-((6-chloropyridin-3-yl)oxy)-3-oxa-7-azabicyclo [3.3.1]-nonane-7-carboxylate

The title compound was prepared by following the similar procedure as described in Intermediate-5, using *tert*-butyl 9-hydroxy-3-oxa-7-azabicyclo[3.3.1]nonane-7-carboxylate and 6-chloropyridin-3-ol (0.015 g, 11%); MS: 355(M+1)

Intermediate-74: *syn-tert-Butyl-9-((6-chloropyridin-3-yl)oxy)-3-oxa-7-azabicyclo [3.3.1]-nonane-7-carboxylate*

The title compound was prepared by following the similar procedure as described in Intermediate-5, using *tert-butyl 9-hydroxy-3-oxa-7-azabicyclo[3.3.1]nonane-7-carboxylate* and 6-chloropyridin-3-ol (0.020 g, 14%); MS: 355(M+1)

Intermediate-75: *tert-Butyl-4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl) methoxy) piperidine-1-carboxylate.*

The title compound was prepared by following a procedure described in Intermediate-27 by using *tert-butyl 4-((6-chloropyridin-3-yl)methoxy)piperidine-1-carboxylate* and 5-(methylsulfonyl)-1H-indole (0.410 g, 27.70 %); MS: 386.32 (M-100).

Intermediate-76: *tert-Butyl-4-(((6-(5-methoxy-1H-pyrrolo[2,3-b]pyridin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate*

The title compound was prepared by following the similar procedure as described in Intermediate-27 using 5-methoxy-1H-pyrrolo[2,3-b]pyridine and *tert-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate*. (0.09 g, 45%); MS: 425(M+1).

Intermediate-77: *tert-Butyl-4-(4-bromophenoxy)piperidine-1-carboxylate*

The title compound was prepared by following the similar procedure as described in Intermediate-5 using *tert-butyl 4-hydroxypiperidine-1-carboxylate* and 4-bromophenol (0.65 g, 36%); MS: 256 (M-100).

Intermediate-78: *Isopropyl 1H-indol-5-ylcarbamate*

The title compound was prepared by following the similar procedure as described in Intermediate-52, using 1H-indol-5-amine and isopropyl-chloro-formate (0.72g, 52%); MS: 219(M+1).

Intermediate-79: *tert-Butyl-4-(((6-chloropyridin-3-yl)methyl)amino)piperidine-1-carboxylate*

The title compound was prepared by following the similar procedure as described in Intermediate-5 using *tert-butyl-4-oxopiperidine-1-carboxylate* and *tert-butyl 4-oxopiperidine-1-carboxylate* (0.15 g, 36%); MS: 326.4 (M+1).

Intermediate-80: *tert*-Butyl-4-(4-(5-(methylsulfonyl)indolin-1-yl)phenoxy)piperidine-1-carboxylate

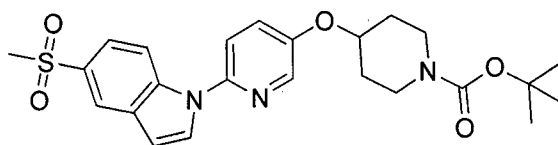
The title compound was prepared by following the similar procedure as described in Intermediate-27 using *tert*-butyl-4-(4-bromophenoxy)piperidine-1-carboxylate and 5-(methylsulfonyl)indoline (0.11 g, 35%); MS: 373 (M-100).

Intermediate-81: 5-(Ethylsulfonyl)-1H-indole

The title compound was prepared by following the similar procedure as described in Intermediate-20 using 5-iodo-1H-indole (0.347 g, 40%); MS: 210 (M+1).

EXAMPLES

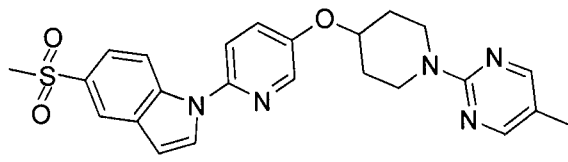
Example-1: *tert*-Butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



To a mixture of 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) (0.440g, 1.4mmol) and 5-(methylsulfonyl)-1H-indole (intermediate-21) (0.261g, 1.3mmol) in anhydrous dioxane (5 mL), 2-(2'-Di-*tert*-butylphosphine) biphenylpalladium(II)acetate (0.130g, 0.281mmol) and NaO^tBu (sodium *tert*.butoxide) (0.312g, 0.960mmol) were added. The resultant reaction mixture was refluxed for 4-5h. The reaction mixture was filtered over celite and filtrate was concentrated *in vacuo*. The residue was purified by flash column chromatography to give *tert*-butyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate (0.337g, 50%).

¹H NMR (400 MHz, CDCl₃) δ; 1.47 (s, 9H), 1.82 (bs, 2H), 1.98-2.08 (m, 2H), 3.08 (s, 3H), 3.37 (bs, 2H), 3.73 (bs, 2H), 4.55 (bs, 1H), 6.82 (bs, 1H), 7.42 (bs, 2H), 7.71 (bs, 1H), 7.79 (d, *J* = 9.2 Hz, 1H), 8.18 (d, *J* = 8.4 Hz, 1H), 8.29 (bs, 2H); MS: 416 (M-56).

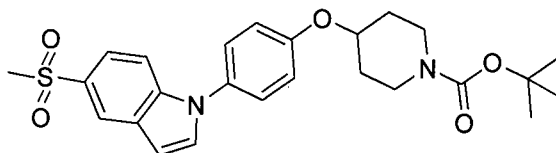
Example-2: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



To a stirred solution of example-1 (0.1g, 0.212 mmol) in dichloromethane (5 mL) trifluoroacetic acid (0.5 mL) was added at 0°C and stirred at room temperature for 2-3h. The solvent was removed *in vacuo* and the resulting salt was dissolved in 2-propanol (3 mL), diisopropylethylamine (0.082 g, 0.635 mmol) and 2-chloro-5-ethylpyrimidine (0.039 g, 0.275 mmol) were added and stirred at 160°C for 3h. The suspension was passed through celite, the filtrate was concentrated and the resulting residue was purified by flash column chromatography to give 1-(6-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole as white solid (0.054 g, 24%).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.2 Hz, 3H), 1.87-1.89 (m, 2H), 2.04-2.09 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H) 3.09 (s, 3H), 3.65-3.70 (m, 2H), 4.21-4.24 (m, 2H), 4.65 (bs, 1H), 6.83 (s, 1H), 7.41-7.48 (m, 2H), 7.73 (s, 1H), 7.81 (d, *J* = 8.4 Hz, 1H), 8.20 (bs, 3H), 8.31 (bs, 2H); MS: 478 (M+1).

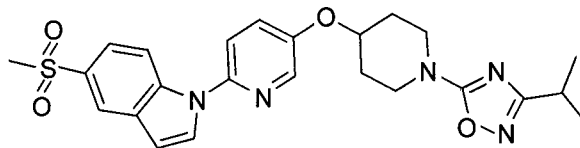
Example-3: *tert*-Butyl-4-(4-(5-(methylsulfonyl)-1H-indol-1-yl)phenoxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate-21) and *tert*-butyl-4-(4-bromophenoxy)piperidine-1-carboxylate (intermediate-77) (0.130g, 24 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.49 (s, 9H), 1.85-1.86 (m, 2H), 1.96-2.01 (m, 2H), 3.09 (s, 3H), 3.36-3.43 (m, 2H), 3.71-3.77 (m, 2H), 4.54-4.56 (m, 1H), 6.80 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.07, (dd, *J* = 6.8, 2.4 Hz, 2H), 7.38 (dd, *J* = 6.8, 2.0 Hz, 2H), 7.42 (d, *J* = 3.2 Hz, 1H), 7.54 (d, *J* = 8.8 Hz, 1H), 7.74 (dd, *J* = 1.6, 8.4 Hz, 1H), 8.33 (d, *J* = 4 Hz, 1H); MS: 471 (M+1).

Example-4: 3-Isopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole



StepA: 4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carbonitrile

5 To a stirred solution of example-1 (0.3 g, 0.63 mmol) in dichloromethane (5 mL) trifluoroacetic acid (2.0 mL) was added at 0°C and stirred at room temperature for 2-3 h. The solvent was removed *in vacuo* and the resulting salt was dissolved in dichloromethane (5 mL). Triethylamine (0.193 g, 1.91 mmol) and the cyanogen bromide (0.101g, 0.95 mmol) were added at 0°C and stirred at room temperature for 2-3 h. The reaction mixture was
10 quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and purified by flash column chromatography to give 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carbonitrile (intermediate-36) (0.160g, 63%); MS: 397.46 (M+1).

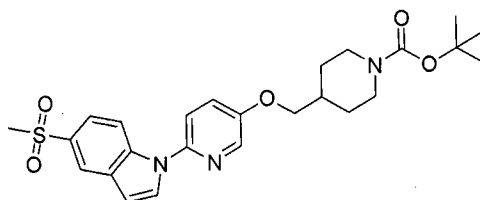
Step B: 3-Isopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl) oxy)-piperidin-
15 1-yl)-1,2,4-oxadiazole

To a mixture of 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3yl)oxy)piperidine-1-carbonitrile (intermediate-36) (0.110 g, 0.27mmol) and N-hydroxy-isobutyramidine (0.05 g, 0.5 mmol) in anhydrous THF (15 mL), 1M solution of zinc chloride in THF (0.56 mL, 0.56 mmol) was added. The suspension was stirred at room temperature for 18 h. Solvent was
20 concentrated *in vacuo*, the resulting crude was dissolved in 4N HCl in ethanol, water (1:1) and stirred at 60-70°C for 2-3 h. The reaction was quenched by saturated NaHCO₃ and the organic layer was separated and concentrated. The residue was purified by flash column chromatography to give 3-isopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole (0.041g, 30%)

25 ¹H NMR (400 MHz, CDCl₃) δ; 1.29 (d, *J* = 6.8 Hz, 6H), 1.98-2.01 (m, 2H), 2.07-2.10 (s, 2H), 2.88-2.92 (m, 1H), 3.09 (s, 3H), 3.65-3.69 (m, 2H), 3.84-3.88 (m, 2H), 4.66 (bs, 1H),

6.82-6.83 (d, $J = 2.8$ Hz, 1H), 7.44 (bs, 2H), 7.72 (d, $J = 2.8$ Hz, 1H), 7.80 (d, $J = 8.8$ Hz, 1H), 8.20 (d, $J = 8.8$ Hz, 1H), 8.30 (bs, 2H); MS: 482 (M+1).

Example-5: *tert*-Butyl-4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)methyl)piperidine-1-carboxylate



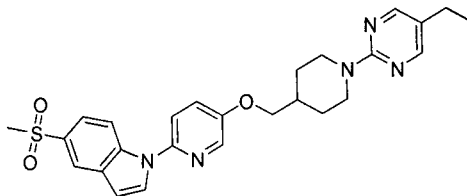
5

The title compound was prepared by following the similar procedure as described in Example- 1 using 5-(methylsulfonyl)-1H-indole (intermediate-21) and *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)methyl)piperidine-1-carboxylate (intermediate-29) (0.188 g, 11%).

^1H NMR (400 MHz, CDCl_3) δ : 1.23-1.29 (m, 2H), 1.45 (s, 9H), 1.83-1.86 (m, 2H), 2.00 (bs, 1H), 2.73-2.79 (m, 2H), 3.07 (s, 3H), 3.90-3.91 (m, 2H), 4.17 (m, 2H), 6.81(s, 1H), 7.39 (s, 2H), 7.69 (bs, 1H), 7.77-7.79 (m, 2H), 8.14-8.16 (m, 1H), 8.24-8.28 (m, 1H); MS: 430 (M-56).

10

Example-6: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)methoxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



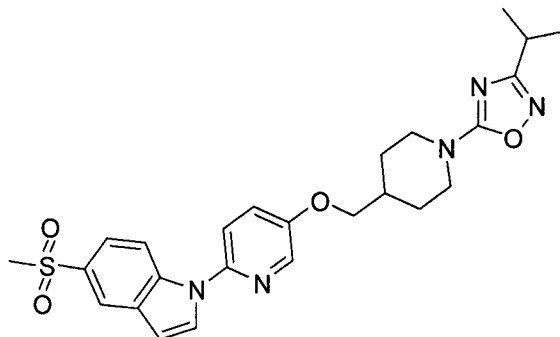
15

The title compound was prepared by following the similar procedure as described in Example-2 by using Example- 5 (0.012g, 11%).

^1H NMR (400 MHz, CDCl_3) δ : 1.22 (t, $J = 7.6$ Hz, 3H), 1.37-1.46 (m, 2H), 1.97-2.06 (m, 2H), 2.11-2.17 (m, 1H), 2.49 (q, $J = 7.6$ Hz, 2H), 2.92-2.96 (m, 2H), 3.11 (s, 3H), 3.97 (d, $J = 6.4$ Hz, 2H), 4.83 (m, 2H), 6.84 (dd, $J = 2.8, 0.4$ Hz, 1H), 7.43 (d, $J = 2.0$ Hz, 2H), 7.74 (d, $J = 3.6$ Hz, 1H), 7.82 (dd, $J = 7.2, 1.6$ Hz, 1H), 8.17 (s, 1H), 8.20 (s, 1H), 8.21 (bs, 1H), 8.29 (t, $J = 2.0, 1.6$ Hz, 1H), 8.32 (d, $J = 1.6$, 1H); MS: 492 (M+1).

20

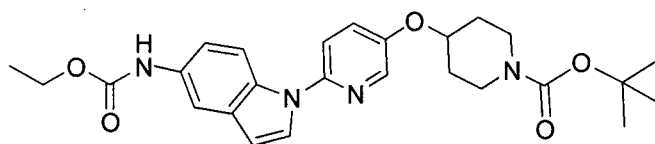
Example-7: 3-Isopropyl-5-(4-((((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)methyl)piperidin-1-yl)-1,2,4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 by using Example-5 (0.012 g, 12%).

^1H NMR (400 MHz, CDCl_3) δ : 1.30 (d, $J = 7.2$ Hz, 6H), 1.49-1.56 (m, 2H), 1.97-2.00 (m, 2H), 2.05-2.14 (m, 1H), 2.87-2.94 (m, 1H), 3.09 (s, 3H), 3.10-3.17 (m, 2H), 3.96 (d, $J = 6.4$ Hz, 2H), 4.23-4.27 (m, 2H), 6.83 (dd, $J = 3.2, 0.4$ Hz, 1H), 7.42 (d, $J = 1.6$ Hz, 2H), 7.72 (d, $J = 3.6$ Hz, 1H), 7.80 (dd, $J = 6.8, 2.0$ Hz, 1H), 8.17 (d, $J = 8.8$ Hz, 1H), 8.27 (m, 1H), 8.30 (d, $J = 1.6$ Hz, 1H); MS: 496 (M+1).

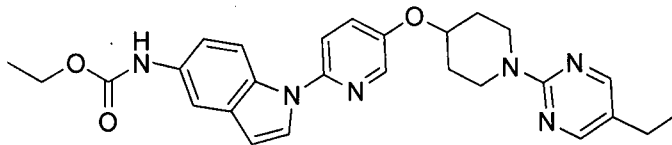
Example-8: *tert*-Butyl-4-(((6-(5-((ethoxycarbonyl)amino)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-06) and ethyl 1H-indol-5-ylcarbamate (intermediate-52) (6.0 g, 35%).

^1H NMR (400 MHz, CDCl_3) δ : 1.32 (t, $J = 7.2$ Hz, 3H), 1.48 (s, 9H), 1.76-1.84 (m, 2H), 1.95-2.00 (m, 2H), 3.33-3.39 (m, 2H), 3.71-3.77 (m, 2H), 4.21 (q, $J = 7.2$ Hz, 2H), 4.49-4.52 (m, 1H), 6.59 (bs, 1H), 6.63 (d, $J = 3.2$ Hz, 1H), 7.18 (d, $J = 9.2$ Hz, 1H), 7.38 (dd, $J = 10.4, 8.0$ Hz, 2H), 7.60 (d, $J = 3.2$ Hz, 1H), 7.75 (bs, 1H), 7.99 (d, $J = 8.8$ Hz, 1H), 8.23 (d, $J = 2$ Hz, 1H); MS: 481 (M+1).

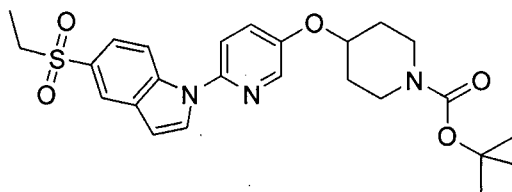
Example-9: Ethyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate



5 The title compound was prepared by following the similar procedure as described in Example-2 by using Example-8 (1.4g, 23%).

¹H NMR (400 MHz, CDCl₃) δ; 1.21 (t, *J* = 7.6 Hz, 3H), 1.33 (t, *J* = 6.8 Hz, 3H), 1.86-1.89 (m, 2H), 2.06-2.09 (m, 2H), 2.78 (q, *J* = 7.6 Hz, 2H), 3.63-3.70 (m, 2H), 4.20-4.28 (m, 2H), 4.60 (bs, 1H), 6.59 (bs, 1H), 6.64 (d, *J* = 3.2 Hz, 1H), 7.18 (d, *J* = 8.8-Hz, 1H), 7.41 (bs, 2H), 7.62 (d, *J* = 3.2 Hz, 1H), 7.76 (bs, 1H), 8.01 (d, *J* = 8.8 Hz, 1H), 8.20 (bs, 2H), 8.27 (d, *J* = 1.2 Hz, 1H); MS: 487 (M+1).

Example-10: *tert*-Butyl-4-((6-(5-(ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate

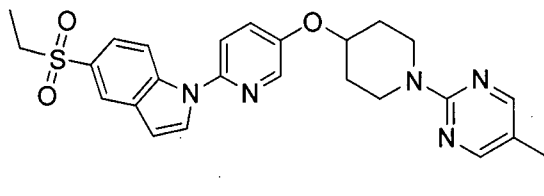


15 The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl-4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 5-(ethylsulfonyl)-1H-indole (intermediate-81).

¹H NMR (400 MHz, CDCl₃) δ; 1.27 (t, *J* = 7.2 Hz, 3H), 1.48 (s, 9H), 1.79-1.83 (m, 2H), 1.97-2.02 (m, 2H), 3.15 (q, *J* = 7.2 Hz, 2H), 3.36-3.40 (m, 2H), 3.71-3.77 (m, 2H), 4.55-4.57 (m, 1H), 6.82 (dd, *J* = 3.6, 0.8 Hz, 1H), 7.40-7.45 (m, 2H), 7.71 (d, *J* = 3.6 Hz, 1H), 7.75 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.18 (d, *J* = 8.8 Hz, 1H), 8.25-8.28 (m, 2H); MS: 430.1 (M-56).

Example-11: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(ethylsulfonyl)-1H-indole.

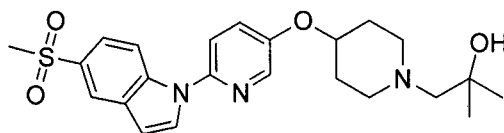
55



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-10.

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.2 Hz, 3H), 1.24 (t, *J* = 7.6 Hz, 3H), 1.86-1.89 (m, 2H), 2.06-2.09 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.15 (q, *J* = 7.6 Hz, 2H), 3.65-3.70 (m, 2H), 4.18-4.24 (m, 2H), 4.63 (bs, 1H), 6.82 (dd, *J* = 3.6, 0.8 Hz, 1H), 7.43-7.47 (m, 2H), 7.71-7.72 (d, *J* = 3.6 Hz, 1H), 7.75 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.18-8.20 (m, 3H), 8.25 (d, *J* = 1.2 Hz, 1H), 8.30 (m, 1H); MS: 492.1 (M+1).

Example-12: 2-Methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-2-ol

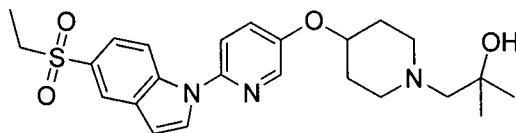


To a stirred solution of Example-1 (0.4 g, 0.848 mmol) in dichloromethane (5 mL) trifluoroacetic acid (0.065 mL, 0.848 mmol) was added at 0°C and stirred for 3 h. The reaction mixture was concentrated *in vacuo* and the resultant residue was dissolved in methanol (5 mL), 2, 2-dimethyloxirane (0.061 g, 0.85 mmol) was added and stirred at room temperature for 18 h. Methanol was concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to give 2-methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-2-ol (0.279 g, 74%).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (s, 6H), 1.88-1.92 (m, 2H), 2.06 (bs, 2H), 2.39 (s, 2H), 2.59-2.63 (m, 2H), 2.93-2.95 (m, 2H), 3.10 (s, 3H), 4.43 (bs, 1H), 6.840-6.849 (m, 1H), 7.41-7.43 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.20 (d, *J* = 8.8 Hz, 1H), 8.28-8.31 (m, 2H); MS: 444.2 (M+1).

Example-13: 1-(4-((6-(5-(Ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-methylpropan-2-ol

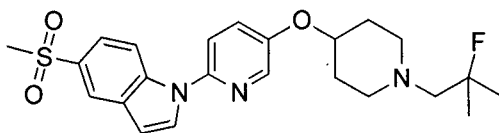
56



The title compound was prepared by following the similar procedure as described in Example-12 by using Example-10.

¹H NMR (400 MHz, CDCl₃) δ: 1.20 (s, 6H), 1.27 (t, *J* = 7.2 Hz, 3H), 1.92 (bs, 2H), 2.06 (bs, 2H), 2.35-2.39 (bs, 2H), 2.61-2.63 (m, 2H), 2.95 (bs, 2H), 3.17 (q, *J* = 7.6 Hz, 2H), 4.43 (bs, 1H), 6.83-6.84 (m, 1H), 7.41-7.46 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.77 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.27-8.29 (m, 2H); MS: 458.08 (M+1).

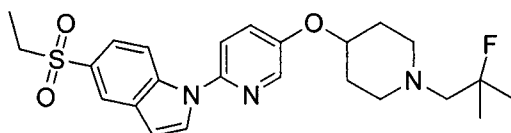
Example-14: 1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



To a stirred solution of example-12 (0.25 g, 0.564 mmol) in dichloromethane (15 mL) deoxofluor (0.11mL, 0.62 mmol) was added at 20°C and stirred for 3 h. The reaction was quenched by the addition of saturated NaHCO₃ solution. The mixture was extracted with dichloromethane, concentrated *in vacuo* and the residue was purified by flash column chromatography to give 1-(5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole (0.170 g, 67%).

¹H NMR (400 MHz, CDCl₃) δ: 1.37 (d, *J* = 21.6 Hz, 6H), 1.85-1.90 (m, 2H), 2.03 (bs, 2H), 2.42-2.50 (m, 4H), 2.88-2.90 (m, 2H), 3.08 (s, 3H), 4.35-4.39 (m, 1H), 6.81 (d, *J* = 2.8 Hz, 1H), 7.38-7.43 (m, 2H), 7.71 (d, *J* = 3.6 Hz, 1H), 7.79 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.17 (d, *J* = 8.8Hz, 1H), 8.26-8.29 (m, 2H); MS: 446.2 (M+1).

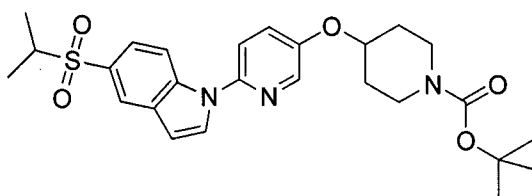
Example-15: 5-(Ethylsulfonyl)-1-(5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-14 by using Example-13.

¹H NMR (400 MHz, CDCl₃) δ; 1.27 (t, *J* = 7.2 Hz, 3H), 1.38 (d, *J* = 21.6 Hz, 6H), 1.83-1.91 (m, 2H), 2.01-2.03 (m, 2H), 2.42-2.51 (m, 4H), 2.87-2.90 (m, 2H), 3.15 (q, *J* = 7.2 Hz, 2H), 4.36-4.40 (m, 1H), 6.82 (d, *J* = 3.2 Hz, 1H), 7.39-7.44 (m, 2H), 7.71 (d, *J* = 3.2 Hz, 1H), 7.75 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.18 (d, *J* = 8.8 Hz, 1H), 8.25-8.27 (m, 2H); MS: 460.2 (M+1).

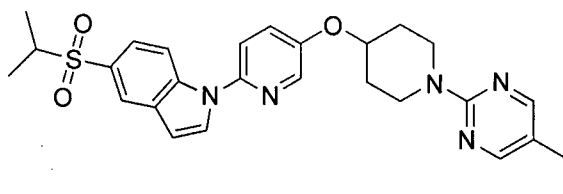
Example-16: *tert*-Butyl 4-((6-(5-(isopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1, using *tert*-Butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 5-(Isopropylsulfonyl)-1H-indole (intermediate-17).

¹H NMR (400 MHz, CDCl₃) δ; 1.30-1.33 (m, 6H), 1.59 (s, 9H), 1.82-1.85 (m, 2H), 1.98-2.00 (m, 2H), 3.23-3.26 (m, 1H), 3.36-3.43 (m, 2H), 3.73-3.78 (m, 2H), 4.58 (bs, 1H), 6.83-6.84 (m, 1H), 7.44-7.45 (m, 2H), 7.72 (d, *J* = 3.6 Hz, 1H), 7.75 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.24 (d, *J* = 1.6 Hz, 1H), 8.29-8.30 (m, 1H); MS: 500.09 (M+1).

Example-17: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(isopropylsulfonyl)-1H-indole

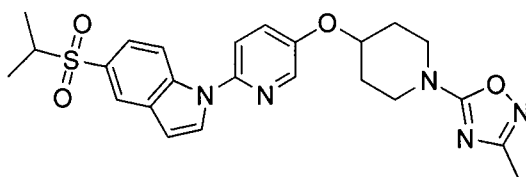


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-16.

¹H NMR (400 MHz, CDCl₃) δ; 1.22 (t, *J* = 7.6 Hz, 3H), 1.32 (d, *J* = 6.8 Hz, 6H), 1.87-1.93 (m, 2H), 2.09-2.14 (m, 2H), 2.50 (q, *J* = 7.6 Hz, 2H), 3.25-3.27 (m, 1H), 3.66-3.72 (m, 2H),

4.21-4.27 (m, 2H), 4.64-4.67 (m, 1H), 6.84 (d, $J = 3.2$ Hz, 1H), 7.43-7.50 (m, 2H), 7.73-7.77 (m, 2H), 8.19-8.25 (m, 4H), 8.32 (s, 1H); MS: 506.09 (M+1).

Example-18: 5-(4-((6-(5-(Isopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3-methyl-1,2,4-oxadiazole



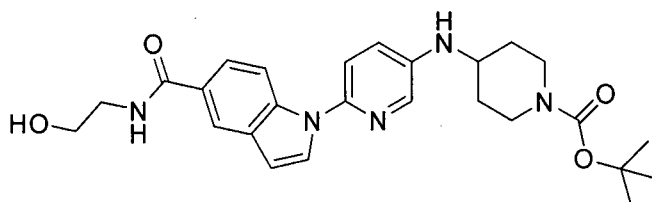
5

The title compound was prepared by following the similar procedure as described in Example-4 by using Example-16 (0.027 g, 12%).

^1H NMR (400 MHz, CDCl_3) δ : 1.29 (d, $J = 7.2$ Hz, 6H), 2.02-2.18 (m, 4H), 2.25 (s, 3H), 3.23-3.26 (m, 1H), 3.67-3.73 (m, 2H), 3.84-3.90 (m, 2H), 4.69-4.70 (m, 1H), 6.84 (d, $J = 3.6$ Hz, 1H), 7.46-7.47 (m, 2H), 7.73 (d, $J = 3.6$ Hz, 1H), 7.76 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.21 (d, $J = 8.8$ Hz, 1H), 8.24 (d, $J = 1.6$ Hz, 1H), 8.31-8.32 (m, 1H); MS: 482.17 (M+1).

10

Example-19: *tert*-Butyl-4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carboxylate

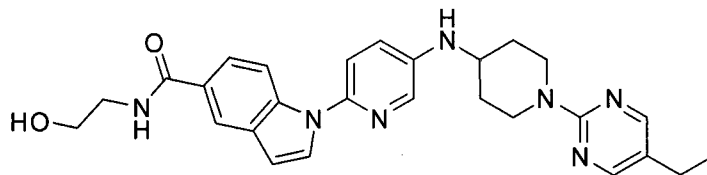


15 The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-bromopyridin-3-yl)amino)piperidine-1-carboxylate (intermediate-5) and N-(2-hydroxyethyl)-1H-indole-5-carboxamide (intermediate-19)

^1H NMR (400 MHz, CDCl_3) δ : 1.29-1.49 (m, 2H), 1.52 (s, 9H), 2.10 (d, $J = 10.8$ Hz, 2H), 2.97 (t, $J = 12$ Hz, 2H), 3.46-3.51 (m, 1H), 3.66-3.70 (m, 2H), 3.87-3.89 (m, 2H), 4.10 (m, 2H), 6.70-6.74 (m, 2H), 7.09 (dd, $J = 8.8, 3.2$ Hz, 1H), 7.31 (d, $J = 8.8$ Hz, 1H), 7.62 (d, $J = 3.6$ Hz, 1H), 7.70 (dd, $J = 8.8, 2.0$ Hz, 1H), 7.93-7.99 (m, 2H), 8.14 (d, $J = 1.2$ Hz, 1H); MS: 482.3 (M+1).

20

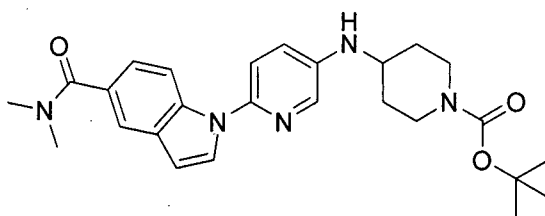
Example-20: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide



5 The title compound was prepared by following the similar procedure as described in Example-2 by using Example-19.

¹H NMR (400 MHz, CDCl₃) δ: 1.22 (t, *J* = 7.6 Hz, 3H), 1.44-1.54 (m, 2H), 2.21 (d, *J* = 10.8 Hz, 2H), 2.50 (q, *J* = 7.6 Hz, 2H), 3.19 (t, *J* = 11.6 Hz, 2H), 3.62 (m, 1H), 3.67-3.71 (m, 2H), 3.87-3.90 (m, 2H), 4.68-4.71 (m, 2H), 6.68 (s, 1H), 6.74 (d, *J* = 3.6 Hz, 1H), 7.12 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.32 (d, *J* = 8.4 Hz, 1H), 7.63 (d, *J* = 3.6 Hz, 1H), 7.69-7.71 (m, 1H), 7.96 (d, *J* = 8.8 Hz, 1H), 8.01 (d, *J* = 2.8 Hz, 1H), 8.14 (d, *J* = 1.2 Hz, 1H), 8.22 (s, 2H); MS: 486.05 (M+1).

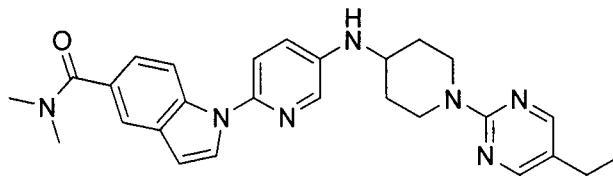
Example-21: *tert*-Butyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-bromopyridin-3-yl)amino)piperidine-1-carboxylate (intermediate-5) and N,N-dimethyl-1H-indole-5-carboxamide (intermediate-12).

20 ¹H NMR (400 MHz, DMSO-d₆) δ: 1.24-1.28 (m, 2H), 1.41 (s, 9H), 1.93 (m, *J* = 10.8 Hz, 2H), 2.89 (s, 1H), 2.99 (s, 6H), 3.53 (s, 1H), 3.89 (d, *J* = 11.2 Hz, 2H), 5.94 (d, *J* = 8 Hz, 1H), 6.70 (d, *J* = 3.2 Hz, 1H), 7.20-7.25 (m, 2H), 7.45 (d, *J* = 8.8 Hz, 1H), 7.68 (s, 1H), 7.84 (d, *J* = 3.2 Hz, 1H), 7.95-7.97 (m, 1H), 8.02 (d, *J* = 8.8 Hz, 1H); MS: 464.2 (M+1).

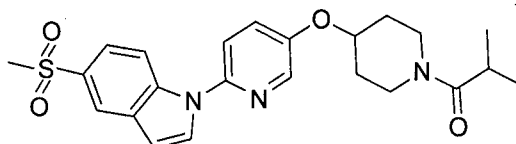
Example-22: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-21.

¹H NMR (400 MHz, DMSO-d₆) δ; 1.16 (t, *J* = 7.6 Hz, 3H), 1.29-1.38 (m, 2H), 2.00 (d, *J* = 9.6 Hz, 2H), 2.43 (q, *J* = 7.6 Hz, 2H), 2.99 (s, 6H), 3.14 (t, *J* = 11.2 Hz, 2H), 3.57-3.65 (m, 1H), 4.52 (d, *J* = 13.6 Hz, 2H), 5.95 (d, *J* = 8.4 Hz, 1H), 6.71 (d, *J* = 3.2 Hz, 1H), 7.22-7.26 (m, 2H), 7.46 (d, *J* = 8.8 Hz, 1H), 7.68 (d, *J* = 1.2 Hz, 1H), 7.84 (d, *J* = 3.2 Hz, 1H), 7.98-8.04 (m, 2H), 8.25 (m, 2H); MS: 470.2 (M+1).

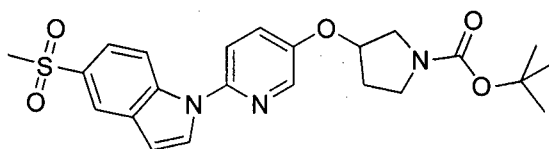
Example-23: 2-Methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-1-one



To a stirred solution of Example-1 (0.120 g, 0.254 mmol) in dichloromethane (5 mL), trifluoroacetic acid (1 mL) was added at 0°C and stirred for 2-3h. The reaction mixture was concentrated *in vacuo* and the resultant residue was dissolved in dichloromethane (10 mL), triethylamine (0.3 mL, 2.036 mmol), N-Ethyl-N'-(3-dimethylaminopropyl) carbodiimide hydrochloride (0.073 g, 0.38 mmol) and isobutyric acid (0.025 g, 0.28 mmol) were added sequentially and stirred at room temperature for 2 h. The reaction was quenched with water and the organic layer was extracted with ethyl acetate, separated dried over Na₂SO₄ and concentrated *in vacuo*. The resultant residue was purified by flash column chromatography to give 2-methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-1-one (41 mg, 36 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.14 (d, *J* = 6.8 Hz, 6H), 1.86-2.20 (m, 4H), 2.80-2.86 (m, 1H), 3.07 (s, 3H), 3.45-3.51 (m, 1H), 3.63-3.66 (m, 1H), 3.76-3.87 (m, 2H), 4.60-4.64 (m, 1H), 6.81 (d, *J* = 3.2 Hz, 1H), 7.41 (dd, *J* = 3.6, 2.8 Hz, 2H), 7.71 (d, *J* = 3.2 Hz, 1H), 7.78 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.18 (d, *J* = 8.8 Hz, 1H), 8.27 (dd, *J* = 4.0, 1.6 Hz, 2H); MS: 442 (M+1).

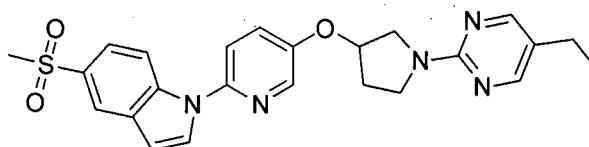
Example-24: (±)-*tert*-Butyl-3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using (±)-*tert*-butyl 3-((6-chloropyridin-3-yl)oxy)pyrrolidine-1-carboxylate (intermediate-8) and 5-(methylsulfonyl)-1H-indole (intermediate-21).

¹H NMR (400 MHz, CDCl₃) δ; 1.45 (s, 9H), 2.16-2.21 (m, 2H), 3.06 (s, 3H), 3.53-3.67 (m, 4H), 4.96 (s, 1H), 6.80 (s, 1H), 7.38 (s, 2H), 7.69-7.78 (m, 2H), 8.17-8.27 (m, 3H); MS: 480.05 (M+23).

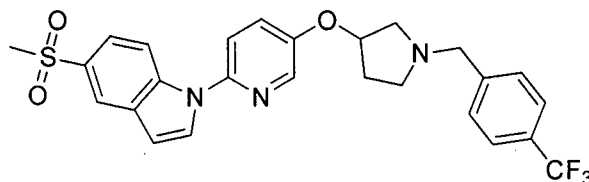
Example-25: (±)-1-(5-((1-(5-Ethylpyrimidin-2-yl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-24.

¹H NMR (400 MHz, CDCl₃) δ; 1.18 (t, *J* = 7.6 Hz, 3H), 2.32-2.50 (m, 4H), 3.08 (s, 3H), 3.72-3.79 (m, 1H), 3.85-3.88 (m, 3H), 5.12-5.14 (m, 1H), 6.82 (d, *J* = 3.2 Hz, 1H), 7.412-7.417 (m, 2H), 7.71 (d, *J* = 3.6 Hz, 1H), 7.79 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.17 (d, *J* = 8.8 Hz, 1H), 8.20 (s, 2H), 8.26-8.29 (m, 2H); MS: 464.11 (M+1).

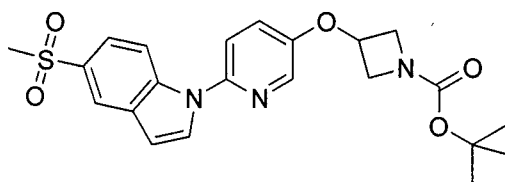
Example-26: (±)-5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)benzyl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-1H-indole



To a stirred solution of Example- 24 (0.100 g, 0.218 mmol) in dichloromethane (4 mL) trifluoroacetic acid (1 mL) was added at 0°C and stirred for 2 h. The reaction contents were concentrated *in vacuo* and the resultant residue was dissolved in N, N'-dimethylformamide (5 mL), triethylamine (0.283 mL, 2.1 mmol), K₂CO₃ (0.283 g, 2.1 mmol) and 1-(chloromethyl)-4-(trifluoromethyl)benzene (0.081 g, 0.42 mmol) were added, stirred at 65°C for 7h. The reaction contents were cooled to room temperature, quenched with water and the organic layer was extracted with dichloromethane. The organic layer was separated, concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to give 5-(methylsulfonyl)-1-((1-(4-(trifluoromethyl) benzyl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-1H-indole (0.023 g, 20%).

¹H NMR (400 MHz, CDCl₃) δ; 2.09 (bs, 1H), 2.37-2.43 (m, 1H), 2.63 (bs, 1H), 2.87 (bs, 2H), 3.00 (bs, 1H), 3.10 (s, 3H), 3.76-3.78 (m, 2H), 4.94 (bs, 1H), 6.84 (d, *J* = 2.8 Hz, 1H), 7.37-7.43 (m, 2H), 7.49-7.51 (m, 2H), 7.60-7.62 (m, 2H), 7.72-7.73 (m, 1H), 7.80-7.82 (m, 1H), 8.18-8.22 (m, 2H), 8.31 (s, 1H); MS: 515.9 (M⁺).

Example-27: *tert*-Butyl-3-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)azetidine-1-carboxylate

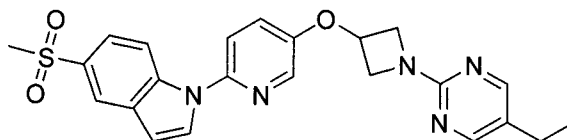


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 3-(((6-chloropyridin-3-yl)oxy)azetidine-1-carboxylate (intermediate -9) and 5-(methylsulfonyl)-1H-indole (intermediate-21).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 3.10 (s, 3H), 4.07-4.11 (m, 2H), 4.37-4.41 (m, 2H), 4.99-5.02 (m, 1H), 6.85 (d, *J* = 3.6 Hz, 1H), 7.32 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.45 (d, *J* =

8.8 Hz, 1H), 7.74 (d, $J = 3.2$ Hz, 1H), 7.82 (dd, $J = 8.8, 2.0$ Hz, 1H), 8.14 (d, $J = 2.8$ Hz, 1H), 8.22 (d, $J = 8.8$ Hz, 1H), 8.31 (d, $J = 1.6$ Hz, 1H); MS: 466.0 (M+23).

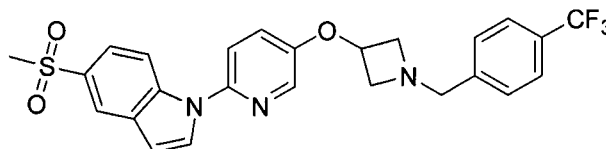
Example-28: 1-(5-((1-(5-Ethylpyrimidin-2-yl)azetidin-3-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-27.

^1H NMR (400 MHz, CDCl_3) δ : 1.22 (t, $J = 7.6$ Hz, 3H), 2.52 (q, $J = 7.6$ Hz, 2H), 3.11 (s, 3H), 4.26-4.29 (m, 2H), 4.59-4.63 (m, 2H), 5.17-5.20 (m, 1H), 6.85 (dd, $J = 3.2, 0.4$ Hz, 1H), 7.35-7.38 (m, 1H), 7.46 (d, $J = 8.8$ Hz, 1H), 7.74 (d, $J = 3.6$ Hz, 1H), 7.82 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.19-8.21 (m, 2H), 8.23 (s, 2H), 8.31 (d, $J = 1.6$ Hz, 1H); MS: 450.0 (M+1).

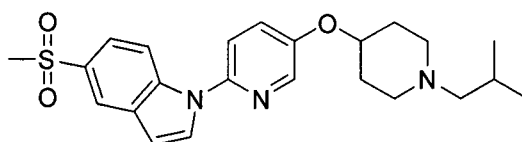
Example-29: 5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)benzyl)azetidin-3-yl)oxy)pyridin-2-yl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-26 by using Example-27.

^1H NMR (400 MHz, CDCl_3) δ : 3.10 (s, 3H), 3.27-3.30 (m, 2H), 3.80 (s, 2H), 3.87-3.91 (m, 2H), 4.92-4.95 (m, 1H), 6.84 (d, $J = 3.6$ Hz, 1H), 7.30-7.33 (m, 1H), 7.41-7.46 (m, 3H), 7.60-7.62 (m, 2H), 7.72 (d, $J = 3.6$ Hz, 1H), 7.81 (dd, $J = 8.8, 2.0$ Hz, 1H), 8.16 (d, $J = 2.8$ Hz, 1H), 8.19 (d, $J = 8.8$ Hz, 1H), 8.31 (d, $J = 1.2$ Hz, 1H); MS: 502.0 (M+1).

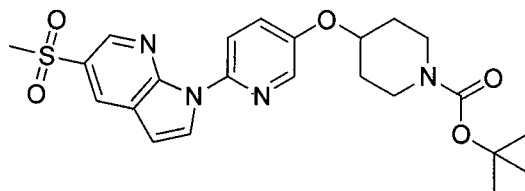
Example-30: 1-(5-((1-Isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



To a stirred solution of Example-23 (0.350 g, 0.8 mmol) in THF (15 mL), LiAlH_4 (0.060 g, 1.585 mmol) was added at 0°C and stirred at room temperature for 18h. The reaction contents were poured into ice cold water and the organic layer was extracted with ethyl acetate, separated and concentrated *in vacuo*. The resultant residue was purified by flash column chromatography to give 1-(5-((1-isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole (0.025 g, 7.38%).

^1H NMR (400 MHz, CDCl_3) δ : 0.95 (d, $J = 6.4$ Hz, 6H), 1.93 (m, 4H), 2.13 (m, 5H), 2.83 (m, 2H), 3.10 (s, 3H), 4.48 (m, 1H), 6.84 (d, $J = 3.2$ Hz, 1H), 7.40-7.45 (m, 2H), 7.73 (d, $J = 3.2$ Hz, 1H), 7.81 (dd, $J = 8.8, 2.0$ Hz, 1H), 8.19 (d, $J = 8.8$ Hz, 1H), 8.28-8.31 (m, 2H); MS: 428.2 (M+1).

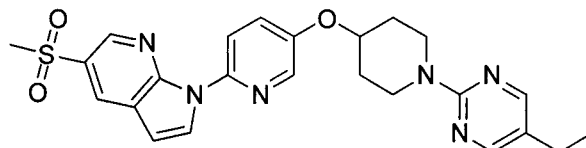
Example-31: *tert*-Butyl-4-(((6-(5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridin-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-Butyl 4-(((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridine (intermediate-25).

^1H NMR (400 MHz, CDCl_3) δ : 1.49 (s, 9H), 1.78-1.86 (m, 2H), 1.97-2.06 (m, 2H), 3.16 (s, 3H), 3.35-3.41 (m, 2H), 3.72-3.78 (m, 2H), 4.54-4.58 (m, 1H), 6.80 (d, $J = 4.0$ Hz, 1H), 7.48 (dd, $J = 9.2, 2.8$ Hz, 1H), 8.21 (d, $J = 2.8$ Hz, 1H), 8.42 (d, $J = 3.6$ Hz, 1H), 8.53 (d, $J = 2.4$ Hz, 1H), 8.68 (d, $J = 8.8$ Hz, 1H), 8.93 (d, $J = 2.0$ Hz, 1H); MS: 417 (M-56).

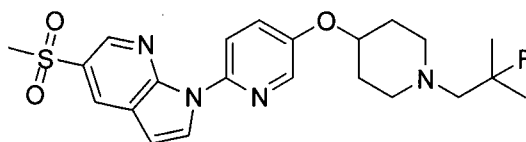
Example-32: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridine.



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-31.

¹H NMR (400 MHz, CDCl₃) δ; 1.23 (t, *J* = 7.6 Hz, 3H), 1.82-1.92 (m, 2H), 2.07-2.12 (m, 2H), 2.49 (q, *J* = 7.6 Hz, 2H), 3.16 (s, 3H), 3.67-3.72 (m, 2H), 4.19-4.25 (m, 2H), 4.63-4.66 (m, 1H), 6.80 (d, *J* = 4.0 Hz, 1H), 7.51 (dd, *J* = 8.8, 2.8 Hz, 1H), 8.21 (s, 2H), 8.24 (d, *J* = 2.8 Hz, 1H), 8.43 (d, *J* = 3.6 Hz, 1H), 8.53 (d, *J* = 1.2 Hz, 1H), 8.68 (d, *J* = 8.8 Hz, 1H), 8.93 (d, *J* = 2.0 Hz, 1H); MS: 479 (M+1)

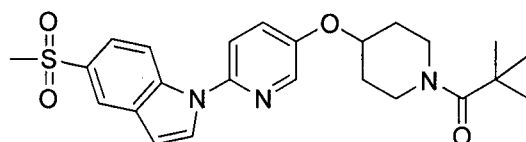
Example-33: 1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridine.



The title compound was prepared by following the similar procedure as described in Example-12 and Example-14 by using Example-31.

¹H NMR (400 MHz, CDCl₃) δ; 1.39 (d, *J* = 21.2 Hz, 6H), 1.89 (bs, 2H), 2.04 (bs, 2H), 2.46-2.52 (m, 4H), 2.89 (bs, 2H), 3.16 (s, 3H), 4.38 (bs, 1H), 6.80 (d, *J* = 3.6 Hz, 1H), 7.47 (dd, *J* = 8.8, 2.8 Hz, 1H), 8.21 (d, *J* = 2.8 Hz, 1H), 8.41 (d, *J* = 4.0 Hz, 1H), 8.52 (d, *J* = 2.0 Hz, 1H), 8.64 (d, *J* = 8.8 Hz, 1H), 8.93 (d, *J* = 2.4 Hz, 1H); MS: 447.4 (M+1)

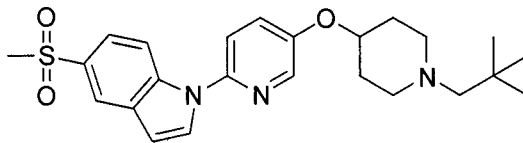
Example-34: 2, 2-Dimethyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-1-one



The title compound was prepared by following the similar procedure as described in Example-23 by using Example-1.

¹H NMR (400 MHz, CDCl₃) δ; 1.33 (s, 9H), 1.86-1.92 (m, 2H), 2.02-2.07 (m, 2H), 3.10 (s, 3H), 3.62-3.68 (m, 2H), 3.89-3.95 (m, 2H), 4.64-4.67 (m, 1H), 6.85 (d, *J* = 3.2 Hz, 1H), 7.45 (d, *J* = 2.4 Hz, 2H), 7.74 (d, *J* = 3.2 Hz, 1H), 7.82 (dd, *J* = 9.2, 2.0 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.30-8.32 (m, 2H); MS: 456.2 (M+1).

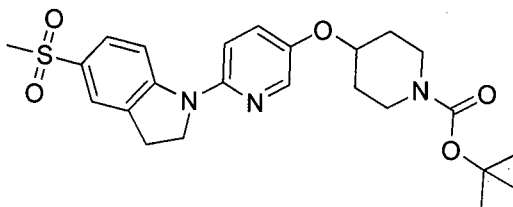
Example-35: 5-(Methylsulfonyl)-1-(5-((1-neopentylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-30 by using Example-34.

¹H NMR (400 MHz, CDCl₃) δ; 0.89 (s, 9H), 1.84-1.90 (m, 2H), 2.01-2.04 (m, 2H), 2.11 (s, 2H), 2.43-2.49 (m, 2H), 2.80-2.85 (m, 2H), 3.10 (s, 3H), 4.34-4.38 (m, 1H), 6.84 (d, *J* = 3.2 Hz, 1H), 7.42-7.43 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.28-8.31 (m, 2H); MS: 442.2 (M+1).

Example-36: *tert*-Butyl-4-(((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate:

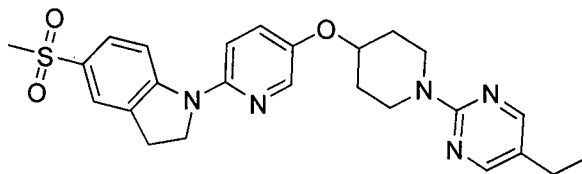


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 5-(methylsulfonyl)indoline (intermediate-26) (0.160g, 48.0 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.49 (s, 9H), 1.71-1.79 (m, 2H), 1.91-1.96 (m, 2H), 3.02 (s, 3H), 3.24-3.34 (m, 4H), 3.70-3.76 (m, 2H), 4.12 (t, *J* = 2.4 Hz, 2H), 4.38-4.41 (m, 1H), 6.79 (d, *J* = 9.2 Hz, 1H), 7.28 (dd, *J* = 9.2, 3.2 Hz, 1H), 7.65 (d, *J* = 1.6 Hz, 1H), 7.72 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.11 (d, *J* = 3.2 Hz, 1H), 8.16 (d, *J* = 8.4 Hz, 1H); MS: 474 (M+1).

Example-37: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)indoline

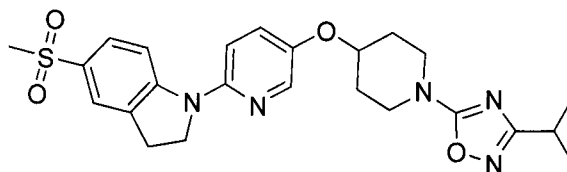
67



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-36 (0.15g, 25 %)

¹H NMR (400 MHz, CDCl₃) δ; 1.92 (t, *J* = 7.6 Hz, 3H), 1.79-1.83 (m, 2H), 2.01-2.04 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.02 (s, 3H), 3.26 (t, *J* = 17.2 Hz, 2H), 3.57-3.63 (m, 2H), 4.12 (t, *J* = 17.6 Hz, 2H), 4.18-4.23 (m, 2H), 4.48-4.49 (m, 1H), 6.80 (d, *J* = 8.8 Hz, 1H), 7.32 (dd, *J* = 8.8, 3.2 Hz, 1H), 7.65 (d, *J* = 1.6 Hz, 1H), 7.72 (dd, *J* = 8.4, 2.0 Hz, 1H), 8.13-8.18 (m, 4H); MS: 480.2 (M+1).

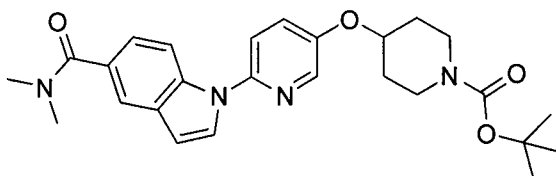
Example-38: 3-Isopropyl-5-(4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 by using Example-36 (0.017 g, 20%).

¹H NMR (400 MHz, CDCl₃) δ; 1.32 (d, *J* = 2.8 Hz, 6H), 1.93-1.97 (m, 2H), 1.98-2.08 (m, 2H), 2.80-2.95 (m, 1H), 3.05 (s, 3H), 3.29 (t, *J* = 17.2 Hz, 2H), 3.61-3.67 (m, 2H), 3.83-3.90 (m, 2H), 4.14 (t, *J* = 17.6 Hz, 2H), 4.51-4.55 (m, 1H), 6.82 (d, *J* = 9.2 Hz, 1H), 7.33 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.68 (d, *J* = 1.6 Hz, 1H), 7.75 (dd, *J* = 8.4, 2.0 Hz, 1H), 8.15 (dd, *J* = 8.4, 2.8 Hz, 1H), 8.22 (d, *J* = 8.4 Hz, 1H); MS: 484.2 (M+1).

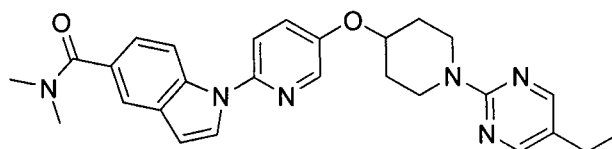
Example-39: *tert*-Butyl-4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and *N,N*-dimethyl-1*H*-indole-5-carboxamide (intermediate-12).

¹H NMR (400 MHz, DMSO-*d*₆) δ; 1.41 (s, 9H), 1.53-1.61 (m, 2H), 1.94-1.98 (m, 2H), 2.99 (s, 6H), 3.17-3.20 (m, 2H), 3.67-3.73 (m, 2H), 4.67-4.72 (m, 1H), 6.77 (d, *J* = 3.2 Hz, 1H), 7.28 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.70 (d, *J* = 1.2 Hz, 3H), 7.99 (d, *J* = 3.6 Hz, 1H), 8.22 (d, *J* = 8.4, 1H), 8.33 (t, *J* = 1.6, 1H); MS: 465.3 (M+1).

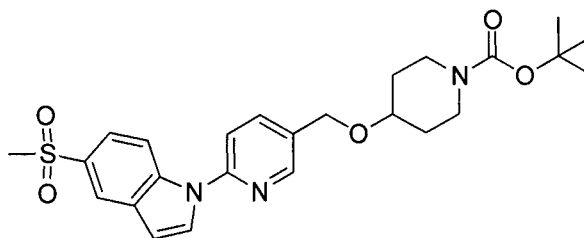
Example-40: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-*N,N*-dimethyl-1*H*-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-39.

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.85-1.89 (m, 2H), 2.07-2.11 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H), 3.08 (s, 6H), 3.65-3.70 (m, 2H), 4.19-4.25 (m, 2H), 4.60-4.63 (m, 1H), 6.72 (d, *J* = 2.8 Hz, 1H), 7.36 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.44 (m, 2H), 7.65 (d, *J* = 3.6 Hz, 1H), 7.76 (d, *J* = 0.8 Hz, 1H), 8.06 (d, *J* = 8.8 Hz, 1H), 8.20 (s, 2H), 8.29 (t, *J* = 2 Hz, 1H); MS: 471.3 (M+1).

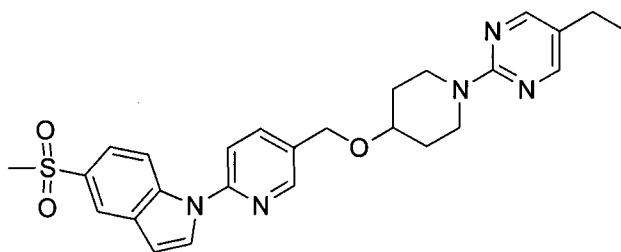
Example-41: *tert*-Butyl 4-((6-(5-(methylsulfonyl)-1*H*-indol-1-yl)pyridin-3-yl)-methoxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1*H*-indole (intermediate-21) and *tert*-butyl 4-((6-chloropyridin-3-yl) methoxy) piperidine-1-carboxylate (intermediate-43).

¹H NMR (400 MHz, CDCl₃) δ; 1.44 (s, 9H), 1.58-1.63 (m, 2H), 1.88 (bs, 2H), 3.07 (s, 3H), 3.08-3.15 (m, 2H), 3.61-3.63 (m, 1H), 3.76 (bs, 2H), 4.61 (s, 2H), 6.82-6.83 (m, 1H), 7.45 (d, *J* = 8.4 Hz, 1H), 7.77-7.81 (m, 2H), 7.87 (dd, *J* = 8.0, 2.0 Hz, 1H), 8.27 (d, *J* = 1.6 Hz, 1H), 8.35 (d, *J* = 8.8 Hz, 1H), 8.53 (bs, 1H); MS: 484.3 (M+1).

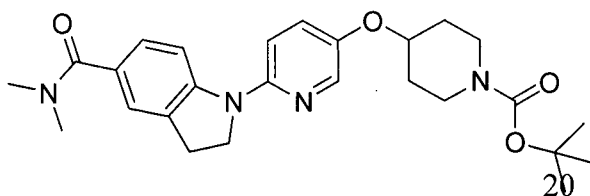
- 5 **Example-42:** 1-(5-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-41.

- 10 ¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.64-1.73 (m, 2H), 2.00-2.04 (m, 2H), 2.46 (q, *J* = 7.6 Hz, 2H), 3.09 (s, 3H), 3.36-3.42 (m, 2H), 3.72-3.76 (m, 1H), 4.29-4.35 (m, 2H), 4.67 (s, 2H), 6.85 (d, *J* = 3.6 Hz, 1H), 7.48 (d, *J* = 8.4 Hz, 1H), 7.80-7.83 (m, 2H), 7.91 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.17 (s, 2H), 8.29 (s, 1H), 8.37 (d, *J* = 8.8 Hz, 1H), 8.57 (s, 1H); MS: 492.2 (M+1).

- 15 **Example-43:** *tert*-Butyl-4-((6-(5-(dimethylcarbamoyl)indolin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate

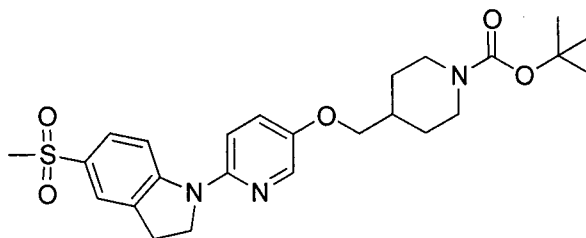


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N,N-dimethylindoline-5-carboxamide (intermediate-13).

- 25 ¹H NMR (400 MHz, CDCl₃) δ; 1.46 (s, 9H), 1.70-1.78 (m, 2H), 1.90-1.95 (m, 2H), 3.07 (s, 6H), 3.21 (t, *J* = 8.8 Hz, 2H), 3.26-3.32 (m, 2H), 3.70-3.76 (m, 2H), 4.03 (t, *J* = 8.4 Hz, 2H),

4.33-4.37 (m, 1H), 6.75 (d, $J = 8.8$, 1H), 7.22-7.30 (m, 3H), 8.03 (d, $J = 8.4$ Hz, 1H), 8.08 (d, $J = 2.8$ Hz, 1H); MS: 467.3 (M+1).

Example-44: *tert*-Butyl-4-(((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)-methyl)piperidine-1-carboxylate



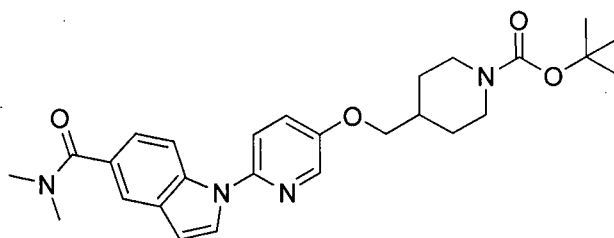
5

The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)indoline (intermediate-26) and *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)methyl)piperidine-1-carboxylate (intermediate-29).

^1H NMR (400 MHz, CDCl_3) δ : 1.26-1.33 (m, 2H), 1.49 (s, 9H), 1.83-1.87 (m, 2H), 1.99-2.07 (m, 1H), 2.77 (m, 2H), 3.04 (s, 3H), 3.28 (t, $J = 8.4$ Hz, 2H), 3.86 (d, $J = 6.4$ Hz, 2H), 4.11-4.19 (m, 4H), 6.81 (d, $J = 9.2$ Hz, 1H), 7.27-7.30 (m, 1H), 7.67 (bs, 1H), 7.74 (dd, $J = 8.4$, 2.0 Hz, 1H), 8.10 (d, $J = 2.8$ Hz, 1H), 8.17 (d, $J = 8.8$ Hz, 1H); MS: 432.2 (M-56).

10

Example-45: *tert*-butyl 4-(((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-methyl)piperidine-1-carboxylate



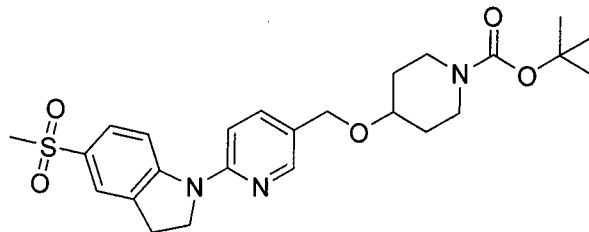
15

The title compound was prepared by following the similar procedure as described in Example- 1by using N,N-dimethyl-1H-indole-5-carboxamide (intermediate-12) and *tert*-butyl-4-(((6-chloropyridin-3-yl)oxy)methyl)piperidine-1-carboxylate (Intermediate 29).

^1H NMR (400 MHz, CDCl_3) δ : 1.66-1.23 (m, 2H), 1.40 (s, 9H), 1.76-1.80 (m, 2H), 1.97 (bs, 1H), 2.66-2.67 (m, 2H), 2.99 (s, 6H), 3.99 (d, $J = 6.4$ Hz, 4H), 6.77 (d, $J = 3.2$ Hz, 1H), 7.28 (dd, $J = 8.8$, 1.6 Hz, 1H), 7.62-7.72 (m, 3H), 7.98 (d, $J = 3.2$ Hz, 1H), 8.20 (d, $J = 8.4$ Hz, 1H), 8.29 (d, $J = 2.8$ Hz, 1H); MS: 479.3 (M+1).

20

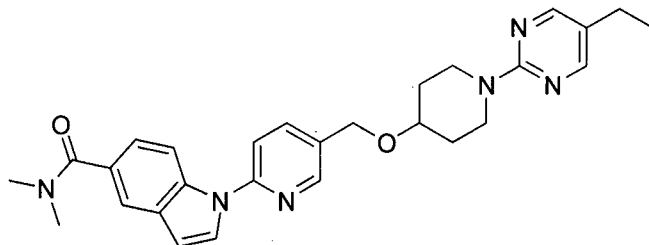
Example-46: *tert*-Butyl-4-(((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl) methoxy) piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using 5-(methylsulfonyl)indoline (intermediate-26) and *tert*-butyl 4-((6-chloropyridin-3-yl) methoxy) piperidine-1-carboxylate (intermediate-43) (462 mg, 34%).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.59-1.63 (m, 2H), 1.88 (bs, 2H), 3.05 (s, 3H), 3.09-3.15 (m, 2H), 3.31 (t, *J* = 8.8 Hz, 2H), 3.57-3.63 (m, 1H), 3.77-3.79 (bs, 2H), 4.16 (t, *J* = 8.8 Hz, 2H), 4.54 (s, 2H), 6.82 (d, *J* = 8.8 Hz, 1H), 7.69-7.71 (bs, 2H), 7.77 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.36-8.41 (m, 2H); MS: 488.2 (M+1).

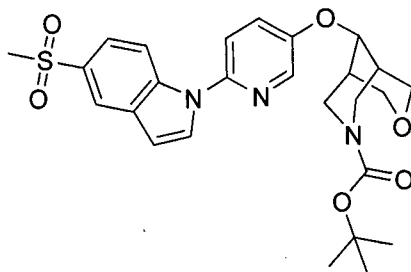
Example-47: 1-(5-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2.

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.6 Hz, 3H), 1.22-1.45 (m, 2H), 1.95-1.98 (m, 2H), 2.13-2.17 (m, 1H), 2.47 (q, *J* = 7.6 Hz, 2H), 2.90-2.97 (m, 2H), 3.08 (s, 6H), 3.94 (d, *J* = 6.4 Hz, 2H), 4.79-4.83 (m, 2H), 6.70-6.71 (m, 1H), 7.34-7.40 (m, 3H), 7.64 (d, *J* = 3.2 Hz, 1H), 7.75 (m, 1H), 8.02 (d, *J* = 8.4 Hz, 1H), 8.18-8.25 (m, 3H); MS: 485.3 (M+1).

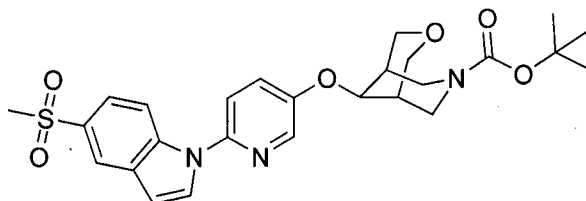
Example-48: (syn)-*tert*-Butyl-9-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy) -3-oxa-7-azabicyclo[3.3.1]nonane-7-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate-21) and anti-*tert*-Butyl-9-(((6-chloropyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]-nonane-7-carboxylate (intermediate-73).

¹H NMR (400 MHz, CDCl₃) δ; 1.46 (s, 9H), 1.92-1.97 (m, 2H), 3.08-3.15 (m, 4H), 3.24-3.27 (m, 1H), 3.84-3.93 (m, 2H), 4.12-4.20 (m, 2H), 4.44-4.48 (m, 1H), 4.59-4.66 (m, 2H), 6.82-6.83 (m, 1H), 7.42-7.49 (m, 2H), 7.72 (d, *J* = 1.6 Hz, 1H), 7.80 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.20 (d, *J* = 8.8 Hz, 1H), 8.29-8.31 (m, 2H); MS: 514.2 (M+1).

Example-49: (anti) *tert*-Butyl- 9-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane-7-carboxylate

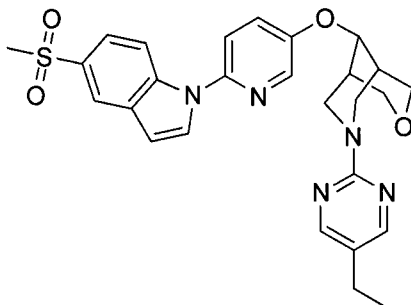


The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate-21) and syn-*tert*-Butyl-9-(((6-chloropyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]-nonane-7-carboxylate (intermediate-74).

¹H NMR (400 MHz, CDCl₃) δ; 1.46 (s, 9H), 2.00-2.06 (m, 2H), 3.09 (s, 3H), 3.40-3.56 (m, 2H), 3.77-3.86 (m, 2H), 4.12-4.32 (m, 4H), 4.46-4.67 (m, 1H), 6.84-6.85 (m, 1H), 7.43-7.52 (m, 2H), 7.73 (d, *J* = 3.2 Hz, 1H), 7.81 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.30-8.33 (m, 2H); MS: 458.1 (M-56).

Example-50: syn 7-(5-Ethylpyrimidin-2-yl)-9-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane

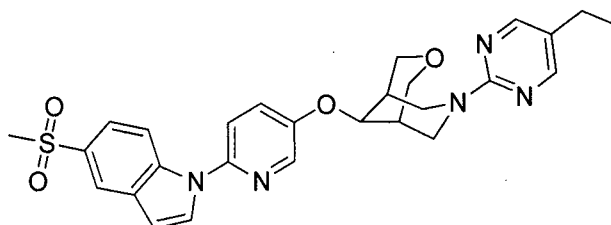
73



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-48.

¹H NMR (400 MHz, CDCl₃) δ; 1.18 (t, *J* = 7.6 Hz, 3H), 2.03 (s, 2H), 2.46 (q, *J* = 7.6 Hz, 2H), 3.08 (s, 3H), 3.25-3.38 (m, 2H), 3.87 (d, *J* = 11.2 Hz, 2H), 4.19 (d, *J* = 11.6 Hz, 2H), 4.75 (t, *J* = 3.2 Hz, 1H), 5.11 (d, *J* = 12.8 Hz, 2H), 6.83-6.84 (m, 1H), 7.47-7.52 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.80 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.20-8.23 (m, 2H), 8.29-8.36 (m, 2H); MS: 520.2 (M+1).

Example-51: anti 7-(5-Ethylpyrimidin-2-yl)-9-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane

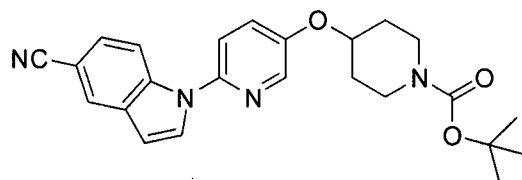


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-49.

¹H NMR (400 MHz, CDCl₃) δ; 1.81 (t, *J* = 7.6 Hz, 3H), 2.20 (bs, 2H), 2.46 (q, *J* = 7.6 Hz, 2H), 3.09 (s, 3H), 3.46-3.48 (m, 1H), 3.57-3.60 (m, 2H), 3.82 (d, *J* = 12.0 Hz, 2H), 4.20 (d, *J* = 11.6 Hz, 2H), 4.71-4.74 (m, 2H), 6.83-6.84 (m, 1H), 7.43-7.50 (m, 3H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.18-8.23 (m, 2H), 8.30-8.36 (m, 2H); MS: 520.2 (M+1).

Example-52: *tert*-Butyl-4-((6-(5-cyano-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

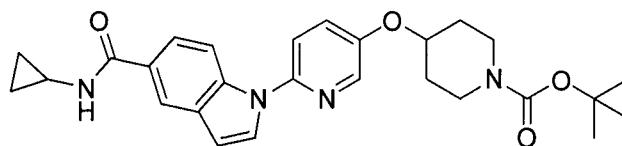
74



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-Butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 1H-indole-5-carbonitrile

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.77-1.85 (m, 2H), 1.96-2.01 (m, 2H), 3.34-3.41 (m, 2H), 3.71-3.77 (m, 2H), 4.25-4.57 (m, 1H), 6.75-6.73 (m, 1H), 7.38-7.44 (m, 2H), 7.49 (dd, *J* = 8.0, 1.6 Hz, 1H), 7.68 (d, *J* = 3.6 Hz, 1H), 8.00 (d, *J* = 1.2 Hz, 1H), 8.12 (d, *J* = 8.8 Hz, 1H), 8.26-8.27 (m, 1H); MS: 463.2 (M-56).

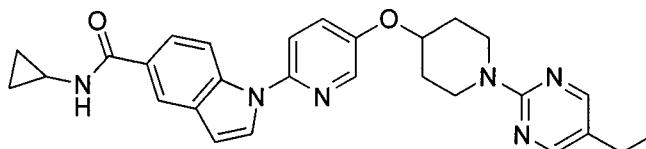
Example-53: *tert*-Butyl-4-((6-(5-(cyclopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N-cyclopropyl-1H-indole-5-carboxamide (intermediate-11).

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 0.64-0.67 (m, 2H), 0.86-0.91 (m, 2H), 1.48 (s, 9H), 1.79-1.83 (m, 2H), 1.96-2.01 (m, 2H), 2.92-2.97 (m, 1H), 3.34-3.40 (m, 2H), 3.76-3.78 (m, 2H), 4.52-4.55 (m, 2H), 6.74 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.41-7.42 (m, 2H), 7.65-7.66 (m, 1H), 7.68 (d, *J* = 1.6 Hz, 1H), 8.04 (d, *J* = 8.8 Hz, 1H), 8.07 (d, *J* = 1.6 Hz, 1H), 8.26-8.26 (m, 1H); MS: 477 (M+1).

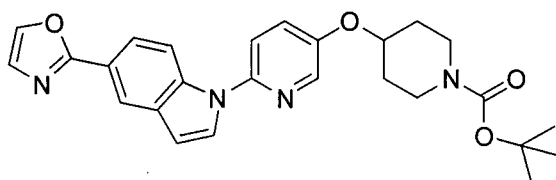
- 20 **Example-54:** *N*-Cyclopropyl-1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-53.

¹H NMR (400 MHz, CDCl₃) δ; 0.62-0.64 (m, 2H), 0.85-0.87 (m, 2H), 1.18 (t, *J* = 7.6 Hz, 3H), 1.83-1.88 (m, 2H), 2.04-2.09 (m, 2H), 2.70 (q, *J* = 7.6 Hz, 2H), 2.91-2.94 (m, 1H), 3.62-3.68 (m, 2H), 4.17-4.23 (m, 2H), 4.60 (m, 1H), 6.27 (bs, 1H), 6.71-6.72 (m, 1H), 7.41-7.42 (m, 2H), 7.63-7.66 (m, 2H), 8.01-8.05 (m, 2H), 8.27 (s, 2H), 8.27 (s, 1H); MS: 483.3 (M+1).

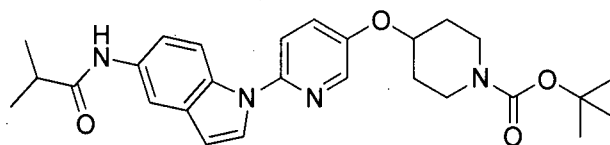
Example-55: *tert*-Butyl-4-((6-(5-(oxazol-2-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 2-(1H-indol-5-yl)oxazole (intermediate-67).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.79-1.85 (m, 2H), 1.96-2.02 (m, 2H), 3.34-3.40 (m, 2H), 3.72-3.78 (m, 2H), 4.52-4.56 (m, 1H), 6.76-6.77 (m, 1H), 7.23 (s, 1H), 7.39-7.45 (m, 2H), 7.66 (d, *J* = 3.6 Hz, 1H), 7.71 (s, 1H), 7.98 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.10 (d, *J* = 8.8 Hz, 1H), 8.27 (s, 1H), 8.29 (s, 1H); MS: 461.2 (M+1).

Example-56: *tert*-Butyl-4-((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate

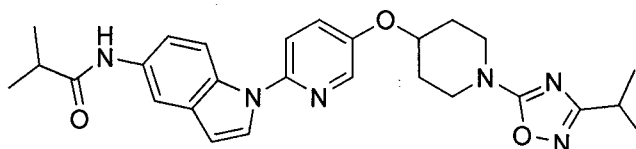


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N-(1H-indol-5-yl)isobutyramide (intermediate-10).

¹H NMR (400 MHz, CDCl₃) δ; 1.29 (d, *J* = 7.2 Hz, 6H), 1.48 (s, 9H), 1.81-1.81 (m, 2H), 1.95-2.01 (m, 2H), 2.50-2.57 (m, 1H), 3.33-3.39 (m, 2H), 3.71-3.77 (m, 2H), 4.50-4.52 (m,

1H), 6.64 (d, $J = 3.2$ Hz, 1H), 7.22 (s, 1H), 7.24 (d, $J = 2.4$ Hz, 1H), 7.38-7.39 (m, 2H), 7.61 (d, $J = 3.6$ Hz, 1H), 7.96 (d, $J = 2$ Hz, 1H), 8.00 (d, $J = 8.8$ Hz, 1H), 8.23-8.24 (m, 1H); MS: 481 (M+1).

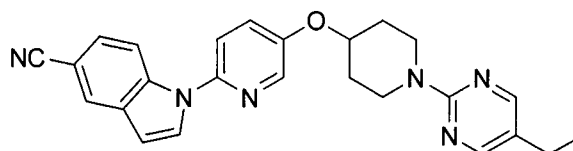
Example-57: *N*-(1-(5-((1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide



The title compound was prepared by following the similar procedure as described in Example- 4 by using Example-56.

¹H NMR (400 MHz, CDCl₃) δ : 1.30 (d, $J = 0.8$ Hz, 12 H), 1.96-2.02 (m, 2H), 2.05-2.11 (m, 2H), 2.11-2.55 (m, 1H), 2.86-2.92 (m, 1H), 3.63-3.69 (m, 2H), 3.82-3.89 (m, 2H), 4.61-4.63 (m, 1H), 6.64 (d, $J = 3.6$ Hz, 1H), 7.19 (m, 1H), 7.26-7.29 (m, 1H), 7.38-7.43 (m, 2H), 7.61 (d, $J = 3.2$ Hz, 1H), 7.95 (d, $J = 2.0$ Hz, 1H), 8.01 (d, $J = 9.2$ Hz, 1H), 8.25 (s, 1H); MS: 489.3 (M+1).

Example-58: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carbonitrile

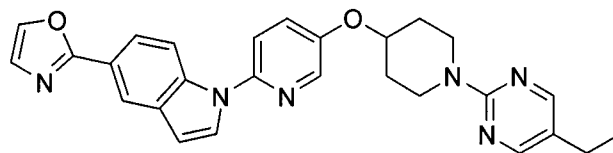


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-52.

¹H NMR (400 MHz, CDCl₃) δ : 1.21 (t, $J = 7.6$ Hz, 3H), 1.85-1.89 (m, 2H), 2.06-2.10 (m, 2H), 2.47 (q, $J = 7.6$ Hz, 2H), 3.64-3.70 (m, 2H), 4.18-4.24 (m, 2H), 4.62-4.63 (m 1H), 6.75-6.76 (m, 1H), 7.39-7.51 (m, 3H), 7.69 (d, $J = 3.6$ Hz, 1H), 8.00 (s, 1H), 8.12 (d, $J = 8.8$ Hz, 1H), 8.19 (s, 2H), 8.29 (s, 1H); MS: 425.3 (M+1).

Example-59: 2-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)oxazole

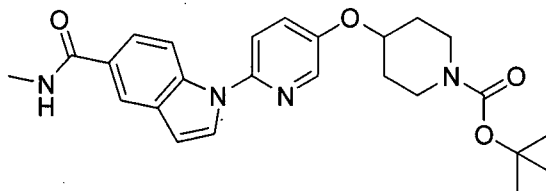
77



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-55.

¹H NMR (400 MHz, CDCl₃) δ; 1.18 (t, *J* = 7.6 Hz, 3H), 1.85-1.91 (m, 2H), 2.05-2.11 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.63-3.69 (m, 2H), 4.19-4.61 (m, 2H), 4.62-4.63 (m, 1H), 6.76 (d, *J* = 3.2 Hz, 1H), 7.22-7.25 (m, 1H), 7.44 (d, *J* = 2.0 Hz, 2H), 7.66 (d, *J* = 3.2 Hz, 1H), 7.70 (s, 1H), 7.98 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.11 (d, *J* = 8.8 Hz, 1H), 8.19 (s, 2H), 8.29-8.30 (m, 1H), 8.35 (s, 1H); MS: 467.2 (M+1).

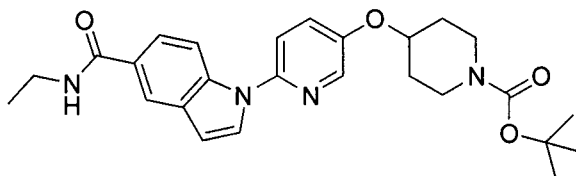
Example-60: *tert*-Butyl-4-((6-(5-(methylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)-oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N-methyl-1H-indole-5-carboxamide (intermediate-14).

¹H NMR (400 MHz, CDCl₃) δ; 1.45 (s, 9H), 1.79-1.83 (m, 2H), 1.96-2.00 (m, 2H), 3.04 (s, 3H), 3.33-3.40 (m, 2H), 3.71-3.76 (m, 2H), 4.52-4.54 (m, 1H), 6.19 (bs, 1H), 6.73-6.74 (m, 1H), 7.41 (s, 2 H), 7.65-7.69 (m, 2H), 8.03-8.10 (m, 2H), 8.25-8.26 (m, 1H); MS: 451.2 (M+1).

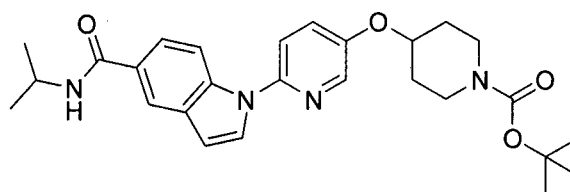
Example-61: *tert*-Butyl-4-((6-(5-(ethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)-oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N-ethyl-1H-indole-5-carboxamide (intermediate-15).

¹H NMR (400 MHz, CDCl₃) δ; 1.28 (t, *J* = 7.2 Hz, 3H), 1.47 (s, 9H), 1.81 (m, 2H), 1.98 (m, 2H), 3.48 (m, 2H), 3.52-3.55 (m, 2H), 3.74 (m, 2H), 4.51 (m, 1H), 6.14 (bs, 1H), 6.74 (d, *J* = 2.8 Hz, 1H), 7.41 (s, 2H), 7.65-7.70 (m, 2H), 8.03-8.09 (m, 2H), 8.26 (s, 1H); MS: 465.2 (M+1).

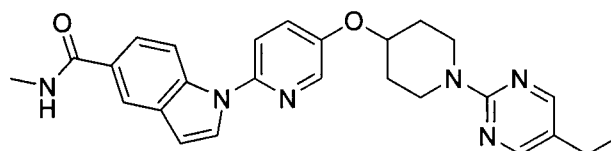
Example-62: *tert*-Butyl-4-((6-(5-(isopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N-isopropyl-1H-indole-5-carboxamide (intermediate-16).

¹H NMR (400 MHz, CDCl₃) δ; 1.23-1.29 (m, 6H), 1.41 (s, 9H), 1.801.82 (m, 2H), 1.96-1.97 (m, 2H), 3.34-3.40 (m, 2H), 3.72-3.75 (m, 2H), 4.34 (m, 1H), 4.53 (m, 1H), 5.97 (bs, 1H), 6.74 (d, *J* = 3.2 Hz, 1H), 7.39-7.43 (m, 2H), 7.65-7.69 (m, 2H), 8.02-8.07 (m, 2H), 8.26 (s, 1H); MS: 479.3 (M+1).

Example-63: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-methyl-1H-indole-5-carboxamide

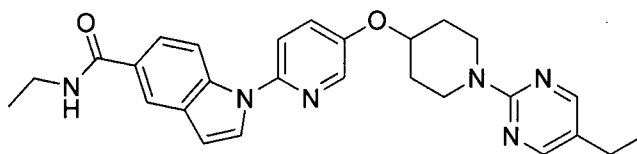


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-60.

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.85-1.89 (m, 2H), 2.06-2.10 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.05 (s, 3H), 3.64-3.69 (m, 2H), 4.19-4.25 (m, 2H), 4.61-4.62

(m, 1H), 6.19 (bs, 1H), 6.74-6.75 (m, 1H), 7.43 (s, 2H), 7.66-7.69 (m, 2H), 8.03 (d, $J = 8.8$ Hz, 1H), 8.10 (s, 1H), 8.19 (s, 2H), 8.29 (s, 1H); MS: 457.3 (M+1).

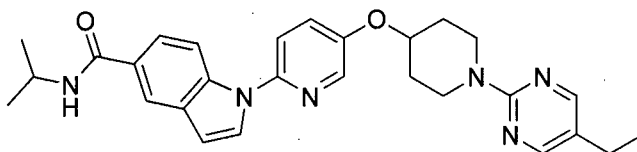
Example-64: *N*-Ethyl-1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-61.

^1H NMR (400 MHz, CDCl_3) δ : 1.21 (t, $J = 7.6$ Hz, 3H), 1.30 (t, $J = 7.2$ Hz, 3H), 1.87-1.91 (m, 2H), 2.08-2.13 (m, 2H), 2.49 (q, $J = 7.6$ Hz, 2H), 3.54-3.57 (m, 2H), 3.66-3.71 (m, 2H), 4.21-4.27 (m, 2H), 4.64 (m, 1H), 6.16 (bs, 1H), 6.76-6.77 (m, 1H), 7.45 (m, 2H), 7.68-7.72 (m, 2H), 8.06-8.12 (m, 2H), 8.21 (s, 2H), 8.30 (m, 1H); MS: 471.3 (M+1).

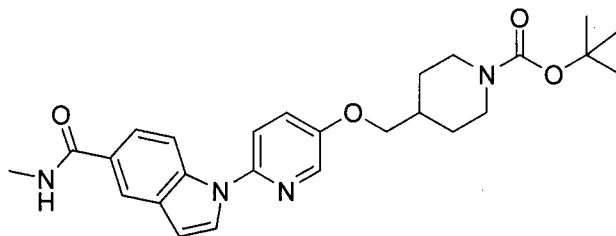
Example-65: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-*N*-isopropyl-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 using Example-62.

^1H NMR (400 MHz, CDCl_3) δ : 1.23 (t, $J = 7.6$ Hz, 3H), 1.30 (d, $J = 6.4$ Hz, 6 H), 1.88-1.91 (m, 2H), 2.07-2.12 (m, 2H), 2.49 (q, $J = 7.6$ Hz, 2H), 3.69 (m, 2H), 4.20-4.26 (m, 2H), 4.32-4.37 (m, 1H), 4.63-4.65 (m, 1H), 5.98 (bs, 1H), 6.76 (d, $J = 3.6$ Hz, 1H), 7.45 (m, 2H), 7.67-7.71 (m, 2H), 8.05-8.09 (m, 2H), 8.30 (s, 2H), 8.31 (m, 1H); MS: 485.3 (M+1).

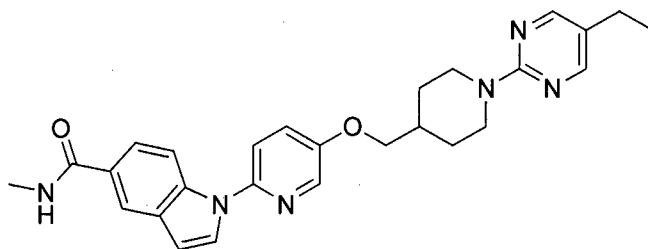
Example-66: *tert*-Butyl-4-(((6-(5-(methylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)-oxy)methyl)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using N-methyl-1H-indole-5-carboxamide (intermediate-14) and *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)methyl)piperidine-1-carboxylate (intermediate-29).

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.25-1.38 (m, 2H), 1.46 (s, 9H), 1.85-1.88 (m, 2H), 2.02-2.04 (m, 1H), 2.76-2.81 (m, 2H), 3.06 (s, 3H), 3.92 (d, *J* = 6.4 Hz, 2H), 4.74 (bs, 2H), 6.75 (d, *J* = 3.2 Hz, 1H), 7.37-7.44 (m, 2H), 7.66-7.70 (m, 2H), 8.03 (d, *J* = 8.8 Hz, 1H), 8.11 (s, 1H), 8.26 (s, 1H); MS: 465.08 (M+1).

Example-67: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)methoxy)pyridin-2-yl)-N-methyl-1H-indole-5-carboxamide

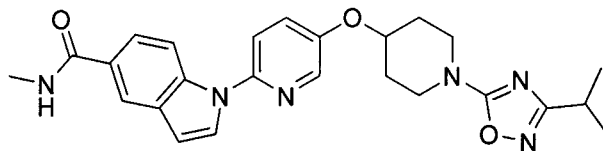


The title compound was prepared by following the similar procedure as described in Example-2 using Example-66.

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 1.21 (t, *J* = 7.6 Hz, 3H), 1.34-1.44 (m, 2H), 1.94-1.98 (m, 2H), 2.14-2.16 (m, 1H), 2.46 (q, *J* = 7.6 Hz, 2H), 2.89-2.96 (m, 2H), 3.05 (s, 3H), 3.93 (d, *J* = 6.4 Hz, 2H), 4.80 (d, *J* = 13.2 Hz, 2H), 6.18 (d, *J* = 4.4 Hz, 1H), 6.74 (d, *J* = 3.2 Hz, 1H), 7.39-7.42 (m, 2H), 7.65-7.69 (m, 2H), 8.03 (d, *J* = 8.8 Hz, 1H), 8.18 (s, 1H), 8.25 (s, 3H); MS: 471.2 (M+1).

Example-68: 1-(5-((1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-methyl-1H-indole-5-carboxamide

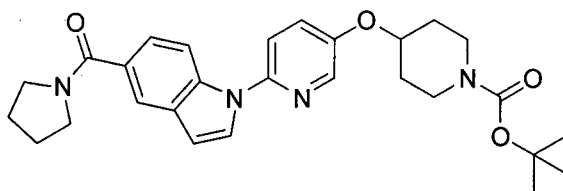
81



The title compound was prepared by following the similar procedure as described in Example- 4 using Example-60.

¹H NMR (400 MHz, CDCl₃) δ; 1.29 (d, *J* = 6.8 Hz, 6H), 1.96-2.09 (m, 2H), 2.06-2.10 (m, 2H), 2.88-2.92 (m, 1H), 3.06 (s, 3H), 3.63-3.70 (m, 2H), 3.83-3.89 (m, 2H), 4.65 (bs, 1H), 6.18 (bs, 1H), 6.75 (s, 1H), 7.43 (bs 2H), 7.66-7.70 (m, 2H), 8.05-8.10 (m, 2H), 8.28 (bs, 1H); MS: 461.2 (M+1).

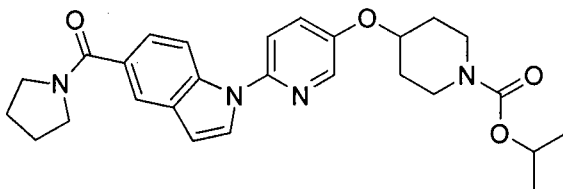
Example-69: *tert*-Butyl- 4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl-4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and (1H-indol-5-yl)(pyrrolidin-1-yl)methanone (intermediate-18).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.79-1.88 (m, 4H), 1.96-1.99 (m, 4H), 3.34-3.40 (m, 2H), 3.47-3.69 (m, 2H), 3.71-3.78 (m, 4H), 4.52-4.55 (m, 1H), 6.67 (bs, 1H), 7.41-7.42 (m, 2H), 7.47 (dd, *J* = 8.4, 1.2 Hz, 1H), 7.65 (d, *J* = 3.6 Hz, 1H), 7.86 (s, 1H), 8.04 (d, *J* = 8.4 Hz, 1H), 8.26 (m, 1H); MS: 491.3 (M+1).

Example-70: Isopropyl 4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

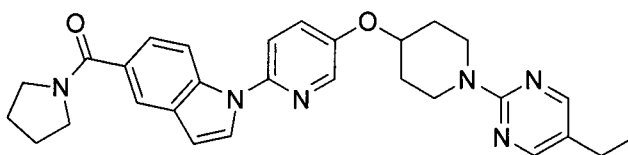


20

To a stirred solution of Example-69 (0.050g, 0.102 mmol) in dichloromethane (3mL) trifluoroacetic acid (0.2 mL) was added and stirred for 1h. The reaction contents were concentrated *in vacuo* and the residue was dissolved in dichloromethane (3mL), triethylamine (0.015g, 0.153mmol), isopropylchloroformate (0.012g, 0.102mmol) were added at 0°C and stirred for 1h. The reaction was quenched by water and the organic layer was extracted with dichloromethane. The organic layer was concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to give isopropyl 4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate (0.012 g, 25 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.24 (d, *J* = 6.0 Hz, 6H), 1.80-1.87 (m, 4H), 1.94-1.99 (m, 4H), 3.38-3.44 (m, 2H), 3.49-3.52 (m, 2H), 3.65-3.74 (m, 2H), 3.75-3.78 (m, 2H), 4.51-4.91 (m, 1H), 4.92-4.94 (m, 1H), 6.69-6.70 (m, 1H), 7.37-7.40 (m, 2H), 7.44-7.50 (m, 1H), 7.63 (d, *J* = 3.6 Hz, 1H), 7.84 (d, *J* = 1.2 Hz, 1H), 8.02 (d, *J* = 8.4 Hz, 1H), 8.24-8.25 (m, 1H); MS: 476.3 (M⁺).

Example-71: (1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone

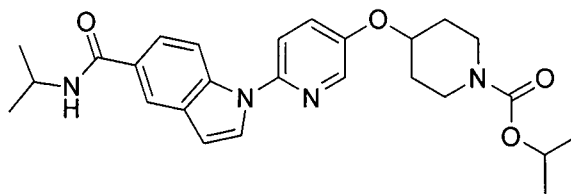


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-69.

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.6 Hz, 3H), 1.85-1.91 (m, 4H), 1.96-2.00 (m, 2H), 2.07-2.08 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H), 3.51-3.55 (m, 2H), 3.62-3.70 (m, 4H), 4.21-4.25 (m, 2H), 4.62 (m, 1H), 6.72 (d, *J* = 3.2 Hz, 1H), 7.43-7.49 (m, 3H), 7.66 (d, *J* = 3.2 Hz, 1H), 7.87 (s, 1H), 8.05 (d, *J* = 8.8 Hz, 1H), 8.20 (s, 2H), 8.29 (s, 1H); MS: 497.2 (M+1).

Example-72: Isopropyl 4-((6-(5-(isopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

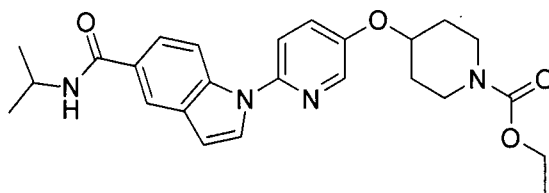
83



The title compound was prepared by following the similar procedure as described in Example-70 using Example-62.

¹H NMR (400 MHz, CDCl₃) δ; 1.19-1.28 (m, 12H), 1.80-1.83 (m, 2H), 1.96-2.00 (m, 2H), 3.38-3.45 (m, 2H), 3.73-3.78 (m, 2H), 4.27-4.34 (m, 1H), 4.52-4.56 (m, 1H), 4.89-4.95 (m, 1H), 6.73 (d, *J* = 3.2 Hz, 1H), 7.37-7.43 (m, 2H), 7.64-7.69 (m, 2H), 8.02-8.06 (m, 2H), 8.25 (s, 1H); MS: 465.2 (M+1).

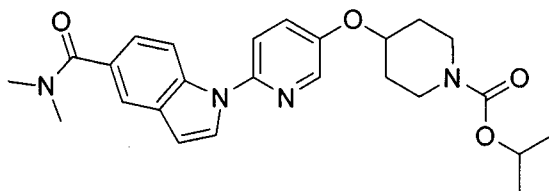
Example-73: Ethyl-4-((6-(5-(isopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 using Example-62.

¹H NMR (400 MHz, CDCl₃) δ; 1.21-1.28 (m, 9H), 1.82-1.86 (m, 2H), 1.98-2.03 (m, 2H), 3.42-3.49 (m, 2H), 3.75-3.81 (m, 2H), 4.16 (q, *J* = 7.2 Hz, 2H), 4.31-4.36 (m, 1H), 4.54-4.57 (m, 1H), 5.99 (bs, 1H), 6.74-6.75 (m, 1H), 7.39-7.45 (m, 2H), 7.66-7.07 (m, 2H), 8.04-8.08 (m, 2H), 8.27 (m, 1H); MS: 451.2 (M+1).

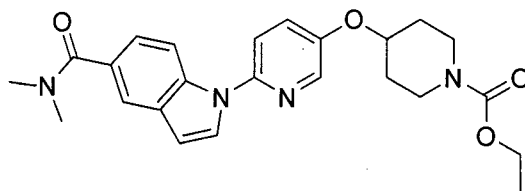
Example-74: Isopropyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 using Example-39.

^1H NMR (400 MHz, CDCl_3) δ : 1.28 (d, $J = 6.4$ Hz, 6H), 1.81-1.86 (m, 2H), 1.99-2.03 (m, 2H), 3.09 (s, 6H), 3.41-3.52 (m, 2H), 3.77-3.82 (m, 2H), 4.54-4.59 (m, 1H), 4.92-4.98 (m, 1H), 6.72-6.73 (m, 1H), 7.37 (dd, $J = 8.4, 6.4$ Hz, 1H), 7.42-7.43 (m, 2H), 7.66 (d, $J = 3.6$ Hz, 1H), 7.77 (s, 1H), 8.06 (d, $J = 8.4$ Hz, 1H), 8.27-8.28 (m, 1H); MS: 451.2 (M+1).

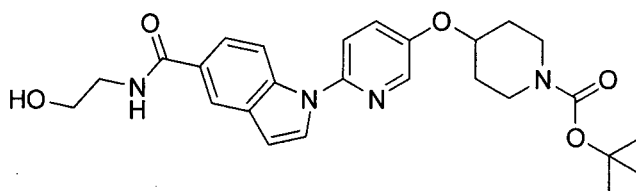
- 5 **Example-75:** Ethyl-4-(((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 using Example-39.

- 10 ^1H NMR (400 MHz, CDCl_3) δ : 1.29 (t, $J = 7.2$ Hz, 3H), 1.82-1.89 (m, 2H), 1.98-2.04 (m, 2H), 3.10 (s, 6H), 3.43-3.50 (m, 2H), 3.76-3.82 (m, 2H), 4.17 (q, $J = 7.2$ Hz, 2H), 4.55-4.59 (m, 1H), 6.72-6.73 (m, 1H), 7.36-7.43 (m, 3H), 7.65 (d, $J = 3.2$ Hz, 1H), 7.77 (s, 1H), 8.06 (d, $J = 8.8$ Hz, 1H), 8.28 (m, 1H); MS: 437.2 (M+1).

- 15 **Example-76:** *tert*-Butyl-4-(((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate

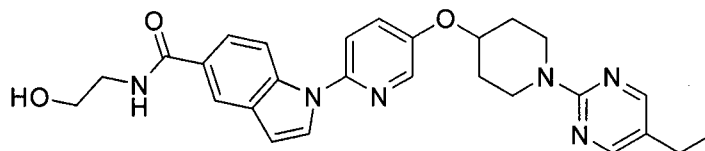


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and N-(2-hydroxyethyl)-1H-indole-5-carboxamide (intermediate-19) (0.110 g, 48.0 %).

^1H NMR (400 MHz, CDCl_3) δ : 1.46 (s, 9H), 1.80-1.84 (m, 2H), 1.98-2.02 (m, 2H), 2.96 (bs, 2H), 3.35-3.41 (m, 2H), 3.66-3.74 (m, 2H), 3.76-3.89 (m, 2H), 4.54-4.56 (m, 2H), 6.66 (bs,

1H), 6.75-6.76 (m, 1H), 7.42 (bs, 2H), 7.66-7.73 (m, 2H), 8.07 (d, $J = 8.8$ Hz, 1H), 8.14 (s, 1H), 8.27 (m, 1H); MS: 481.2 (M+1).

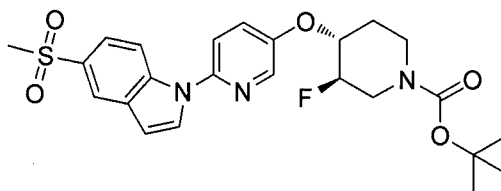
Example-77: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 using Example-76.

^1H NMR (400 MHz, CDCl_3) δ : 1.20 (t, $J = 4.8$ Hz, 3H), 1.87-1.91 (m, 2H), 2.08-2.12 (m, 2H), 2.49 (q, $J = 22.8$ Hz, 2H), 2.84 (bs, 1H), 3.67-3.71 (m, 4H), 3.87-3.90 (m, 2H), 4.21-4.27 (m, 2H), 4.63-4.65 (m, 1H), 6.82 (t, $J = 10.8$ Hz, 1H), 6.77 (d, $J = 3.2$ Hz, 1H), 7.43-7.46 (s, 2H), 7.68-7.74 (m, 2H), 8.09 (d, $J = 8.4$ Hz, 1H), 8.15 (s, 1H), 8.21 (s, 2H), 8.31 (m, 1H); MS: 487.0 (M+1).

Example-78: *trans*($\pm$)-*tert*-Butyl-3-fluoro-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl)oxy)piperidine-1-carboxylate

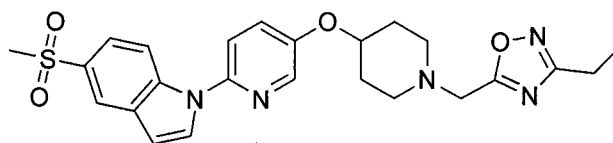


The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate-21) and *trans*($\pm$)-*tert*-butyl-4-((6-chloropyridin-3-yl)oxy)-3-fluoropiperidine-1-carboxylate (intermediate-63) (0.220 g, 37%).

^1H NMR (400 MHz, CDCl_3) δ : 1.51 (s, 9H), 1.78-1.82 (m, 1H), 2.14-2.20 (m, 1H), 3.07 (s, 3H), 3.32 (bs, 1H), 3.43-3.49 (m, 1H), 3.70-3.74 (m, 1H), 4.00 (bs, 1H), 4.47-4.58 (m, 1H), 4.70 (bs, 1H), 6.82 (d, $J = 3.2$ Hz, 1H), 7.41 (d, $J = 8.8$ Hz, 1H), 7.47-7.48 (m, 1H), 7.71 (d, J

= 3.6 Hz, 1H), 7.78-7.80 (m, 1H), 8.20 (d, $J = 8.8$ Hz, 1H), 8.28 (d, $J = 2.0$ Hz, 1H), 8.32 (d, $J = 2.8$ Hz, 1H); MS: 434.1 (M-56).

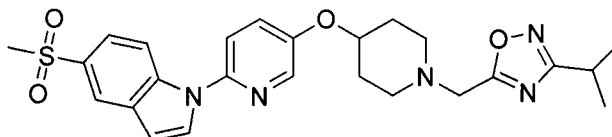
Example-79: 3-Ethyl-5-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methyl)-1,2,4-oxadiazole



To a solution of *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (0.150g, 0.318mmol) in dichloromethane (15 mL), trifluoroacetic acid (0.2 mL) was added and the reaction mixture was stirred for 1h. The reaction mixture was concentrated *in vacuo*, the resultant residue was dissolved in NMP (3 mL), 5-(chloromethyl)-3-ethyl-1,2,4-oxadiazole (0.051g 0.350mmol) and DIPEA (0.123 g, 0.955 mmol) were added and stirred at 60°C for 3h. The reaction was quenched by water and the organic layer was extracted with ethyl acetate. The organic layer was separated, concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to give 3-ethyl-5-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methyl)-1,2,4-oxadiazole (0.012 g, 8%).

¹H NMR (400 MHz, CDCl₃) δ : 1.36 (t, $J = 7.6$ Hz, 3H), 1.99 (m, 2H), 2.11 (m, 2H), 2.59 (m, 2H), 2.82 (q, $J = 6.4$ Hz, 2H), 2.89 (m, 2H), 3.12 (s, 3H), 3.90 (s, 2H), 4.46 (bs, 1H), 6.83 (d, $J = 3.2$ Hz, 1H), 7.42 (d, $J = 2$ Hz, 2H), 7.74 (d, $J = 3.2$ Hz, 1H), 7.80 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.19 (d, $J = 8.8$ Hz, 1H), 8.27-8.30 (m, 2H); MS: 482.0 (M+1).

Example-80: 3-Isopropyl-5-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methyl)-1,2,4-oxadiazole

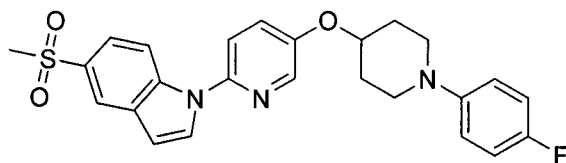


The title compound was prepared by following the similar procedure as described in Example-79 by using Example-1 and 5-(chloromethyl)-3-isopropyl-1,2,4-oxadiazole.

¹H NMR (400 MHz, CDCl₃) δ : 1.38 (d, $J = 6.8$ Hz, 6H), 1.86-1.90 (m, 2H), 2.02-2.03 (m, 2H), 2.68 (bs, 2H), 2.95-2.98 (m, 2H), 3.10-3.18 (m, 4H), 3.97 (s, 2H), 4.91 (bs, 1H), 6.84 (d,

$J = 3.6$ Hz, 1H), 7.43 (d, $J = 1.2$ Hz, 2H), 7.73 (d, $J = 3.6$ Hz, 1H), 7.81 (dd, $J = 8.8$, 1.6 Hz, 1H), 8.19 (d, $J = 8.8$ Hz, 1H), 8.28 (s, 1H), 8.32 (s, 1H); MS: 496.1 (M+1).

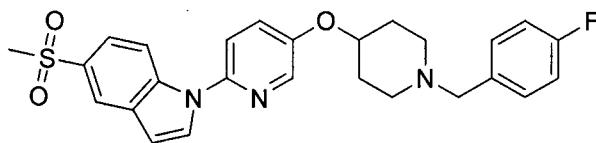
Example-81: 1-(5-((1-(4-Fluorophenyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methyl sulfonyl)-1H-indole



To a stirred solution of example-1 (0.250g, 0.53mmol) in dichloromethane (5 mL) trifluoroacetic acid (0.5 mL) was added at 0°C and stirred at room temperature for 2-3h. The solvent was removed *in vacuo* and the resulting salt was dissolved in anhydrous dioxane (10 mL), and 1-bromo-4-florobenzene (0.074g, 0.424mmol), 2-(2'-Di-*tert*-butylphosphine)biphenylpalladium(II) acetate (0.049g, 0.106mmol) and NaO^tBu (0.120g, 1.318 mmol) were added. The resultant reaction mixture was refluxed for 4-5h. The reaction mixture was filtered over celite and concentrated *in vacuo*. The residue was purified by flash column chromatography to give the title compound.

¹H NMR (400 MHz, CDCl₃) δ : 2.03-2.07 (m, 2H), 2.19-2.23 (m, 2H), 3.06-3.10 (m, 5H), 3.43-3.52 (m, 2H), 4.55-4.58 (m, 1H), 6.85 (d, $J = 3.6$ Hz, 1H), 6.93-7.02 (m, 4H), 7.43-7.49 (m, 2H), 7.63 (d, $J = 3.2$ Hz, 1H), 7.82 (dd, $J = 8.8$, 1.6 Hz, 1H), 8.21 (d, $J = 8.8$ Hz, 1H), 8.32 (s, 2H); MS: 466.1 (M+1).

Example-82: 1-(5-((1-(4-Fluorobenzyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methyl sulfonyl)-1H-indole

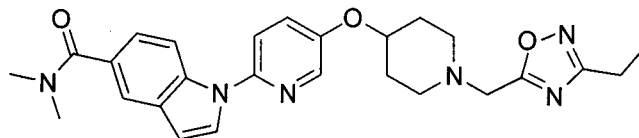


To a stirred solution of Example-1 (0.200g, 0.424mmol) in dichloromethane (10 mL) trifluoroacetic acid (0.2 mL) was added and stirred for 1h. The reaction mixture was concentrated *in vacuo* and the residue was dissolved in DMF (5 mL), Et₃N (0.050 g, 0.5 mmol) was added and stirred for 15 minutes. 4-Fluoro benzaldehyde (0.057 g, 0.467 mmol), sodium triacetoxyborohydride (0.134 g, 0.636 mmol) were added and stirred for 10h. The

reaction was quenched by water and the organic layer was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the residue was purified by flash column chromatography to give 1-(5-(((1-(4-fluorobenzyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole (0.012 g, 6%).

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.92 (bs, 2H), 2.06 (bs, 2H), 2.36 (bs, 2H), 2.78 (bs, 2H), 3.10 (s, 3H), 3.48-3.54 (m, 2H), 4.44 (bs, 1H), 6.84 (d, *J* = 3.6 Hz, 1H), 7.03 (t, 8.4 Hz, 2H), 7.32 (bs, 2H), 7.42-7.3-43 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.28-8.31 (m, 2H); MS: 481.1 (M+1).

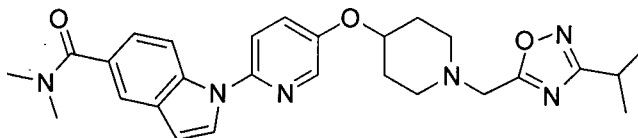
- 10 **Example-83:** 1-(5-(((1-((4-Ethylloxazol-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-79 by using Example-39.

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 1.24 (t, *J* = 7.6 Hz, 3H), 1.66-1.73 (m, 2H), 2.00-2.28 (m, 2H), 2.42-2.50 (m, 2H), 2.68 (q, *J* = 7.6 Hz, 2H), 2.79-2.90 (m, 2H), 2.99 (s, 6H), 3.91 (s, 2H), 4.50-4.55 (m, 1H), 6.76 (d, *J* = 3.6 Hz, 1H), 7.28 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.66-7.70 (m, 3H), 7.98 (d, *J* = 3.6 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.29 (m, 1H); MS: 475.2 (M+1).

- 20 **Example-84:** 1-(5-(((1-((4-Isopropylloxazol-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide

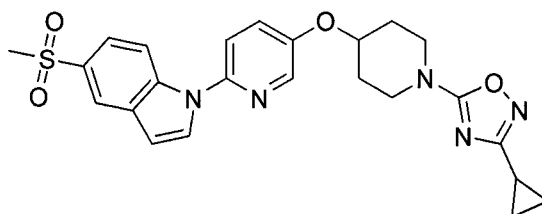


The title compound was prepared by following the similar procedure as described in Example-79 by using Example-39.

- 25 ¹H NMR (400 MHz, CDCl₃) δ; 1.27 (d, *J* = 6.8 Hz, 6H), 1.69-1.71 (m, 2H), 2.00-2.02 (m, 2H), 2.41-2.50 (m, 2H), 2.79-2.81 (m, 2H), 2.99 (s, 6H), 3.03-3.37 (m, 1H), 3.91 (s, 2H),

4.52 (bs, 1H), 6.76 (d, $J = 3.6$ Hz, 1H), 7.28 (dd, $J = 8.8, 2.0$ Hz, 1H), 7.37-7.70 (m, 3H), 7.98 (d, $J = 3.2$ Hz, 1H), 8.21 (d, $J = 8.8$ Hz, 1H), 8.29 (s, 1H); MS: 489.1 (M+1).

Example-85: 3-Cyclopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole



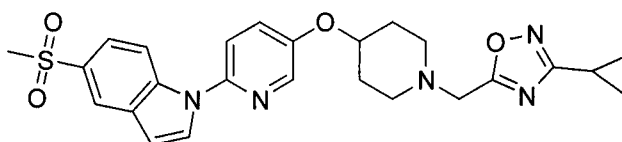
5

The title compound was prepared by following the similar procedure as described in Example-4 by using Example-1 and (Z)-N-hydroxycyclopropanecarbimidic acid.

^1H NMR (400 MHz, CDCl_3) δ : 0.92-0.95 (m, 4H), 1.84-1.88 (m, 1H), 1.93-1.99 (m, 2H), 2.03-2.09 (m, 2H), 3.07 (s, 3H), 3.59-3.65 (m, 2H), 3.78-3.84 (m, 2H), 4.62-4.64 (m, 1H), 6.81 (d, $J = 3.2$ Hz, 1H), 7.42 (bs, 2H), 7.70 (d, $J = 3.6$ Hz, 1H), 7.78 (dd, $J = 8.8, 2.0$ Hz, 1H), 8.18 (d, $J = 8.8$ Hz, 1H), 8.28 (s, 2H); MS: 480.1 (M+1).

10

Example-86: 4-Cyclopropyl-2-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methyl)oxazole



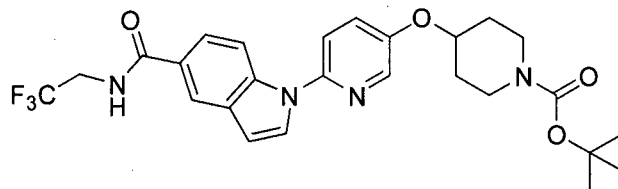
15

The title compound was prepared by following the similar procedure as described in Example-79 by using Example-1.

^1H NMR (400 MHz, CDCl_3) δ : 1.08-1.10 (m, 4H), 1.97 (bs, 2H), 2.10-2.16 (m, 3H), 2.56 (bs, 2H), 2.86-2.88 (m, 2H), 3.10 (s, 3H), 3.85 (s, 2H), 4.45 (bs, 1H), 6.84 (d, $J = 3.2$ Hz, 1H), 7.42 (s, 2H), 7.73 (d, $J = 3.6$ Hz, 1H), 7.81 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.20 (d, $J = 8.8$ Hz, 1H), 8.27-8.31 (m, 2H); MS: 494.1 (M+1).

20

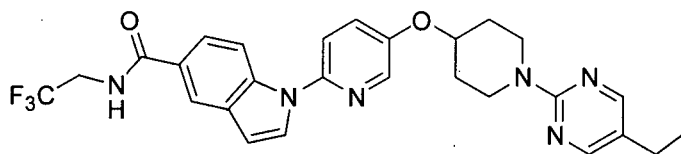
Example-87: *tert*-Butyl-4-((6-(5-((2,2,2-trifluoroethyl)carbamoyl)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate- 06) and *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate- 68).

¹H NMR (400 MHz, CDCl₃) δ; 1.49 (d, *J* = 9.0 Hz, H), 1.81-1.87 (m, 2H), 1.98-2.03 (m, 2H), 3.36-3.42 (m, 2H), 3.73-3.78 (m, 2H), 4.15-4.24 (m, 2H), 4.54 (bs, 1H), 6.79 (d, *J* = 3.2 Hz, 1H), 7.44 (s, 2H), 7.69 (d, *J* = 3.6 Hz, 1H), 7.73 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.10 (d, *J* = 8.4 Hz, 1H), 8.16 (s, 1H), 8.29 (bs, 1H); MS: 519.3 (M+1).

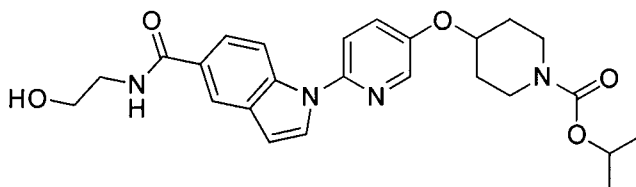
Example-88: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-(2,2,2-trifluoroethyl)-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-87.

¹H NMR (400 MHz, CDCl₃) δ; 1.92 (t, *J* = 4.8 Hz, 3H), 1.86-1.92 (m, 2H), 2.06-2.12 (m, 2H), 2.31 (q, *J* = 7.6 Hz, 2H), 3.66-3.70 (m, 2H), 4.14-4.25 (m, 4H), 4.63-4.64 (m, 1H), 6.41 (t, *J* = 6.4 Hz, 1H), 6.77 (d, *J* = 3.2 Hz, 1H), 7.44-7.45 (m, 2H), 7.68-7.73 (m, 2H), 8.10 (d, *J* = 8.8 Hz, 2H), 8.14-8.20 (m, 2H), 8.30 (m, 1H); MS: 525.2 (M+1).

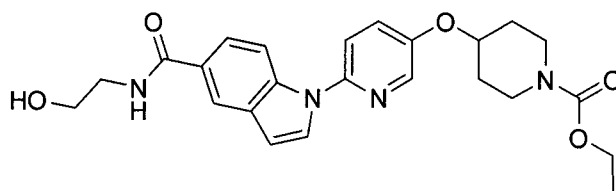
Example-89: Isopropyl 4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-76.

¹H NMR (400 MHz, CDCl₃) δ: 1.25 (d, *J* = 6.0 Hz, 6H), 1.80-1.83 (m, 2H), 1.98-1.99 (m, 2H), 3.39-3.46 (m, 2H), 3.64-3.68 (m, 2H), 3.74-3.78 (m, 2H), 3.84-3.86 (m, 2H), 4.54-4.56 (m, 1H), 4.91-4.94 (m, 1H), 6.74 (d, *J* = 3.6 Hz, 1H), 7.41 (s, 2H), 7.65-7.71 (m, 2H), 8.05 (d, *J* = 8.4 Hz, 1H), 8.12 (s, 1H), 8.25 (s, 1H); MS: 467.1 (M+1).

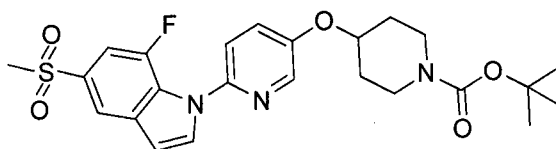
Example-90: Ethyl 4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-76.

¹H NMR (400 MHz, CDCl₃) δ: 1.26 (t, *J* = 7.2 Hz, 3H), 1.79-1.85 (m, 2H), 1.96-2.00 (m, 2H), 3.40-3.46 (m, 2H), 3.64-3.68 (m, 2H), 3.73-3.78 (m, 2H), 3.85 (t, *J* = 4.8 Hz, 2H), 4.14 (q, *J* = 7.2 Hz, 2H), 4.52-4.56 (m, 1H), 6.64-6.66 (m, 1H), 6.73 (d, *J* = 3.6 Hz, 1H), 7.40 (s, 2H), 7.64-7.70 (m, 2H), 8.04 (d, *J* = 8.8 Hz, 1H), 8.11 (s, 1H), 8.25 (bs, 1H); MS: 453.2 (M+1).

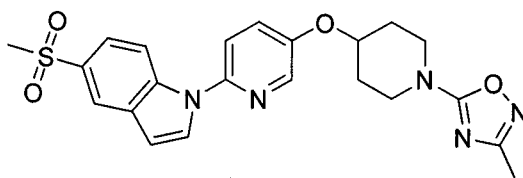
Example-91: *tert*-Butyl 4-((6-(7-fluoro-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-06) and 7-Fluoro-5-(methylsulfonyl)-1H-indole (intermediate-22) (0.060 g, 23%).

¹H NMR (400 MHz, CDCl₃) δ; 1.30 (s, 9H), 1.59 (bs, 2H), 1.86 (bs, 2H), 3.11 (s, 3H), 3.38-3.44 (m, 2H), 3.74-3.80 (m, 2H), 4.58-4.62 (m, 1H), 6.88 (dd, *J* = 3.6, 2.4 Hz, 1H), 7.41 (s, 1H), 7.41 (d, *J* = 1.6 Hz, 1H), 7.52 (dd, *J* = 11.2, 1.6 Hz, 1H), 7.70 (d, *J* = 3.2 Hz, 1H), 8.13 (d, *J* = 1.6 Hz, 1H), 8.25 (d, *J* = 2.0 Hz, 1H); MS: 434 (M-56).

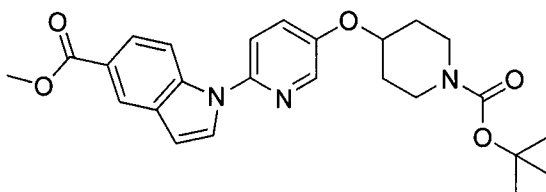
- 5 **Example-92:** 3-Methyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidin-1-yl)-1, 2, 4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 using Example-1 (0.010 g, 5.84%).

- 10 ¹H NMR (400 MHz, CDCl₃) δ; 1.95-2.01 (m, 2H), 2.05-2.10 (m, 2H), 2.20 (s, 3H), 3.07 (s, 3H), 3.63-3.69 (m, 2H), 3.79-3.86 (m, 2H), 4.65 (bs, 1H), 6.80 (d, *J* = 3.2 Hz, 1H), 7.36-7.44 (m, 2H), 7.69-7.70 (m, 1H), 7.76-7.84 (m, 1H), 8.16-8.19 (m, 1H), 8.20-8.30 (m, 2H); MS: 454.1 (M+1).

- 15 **Example-93:** Methyl-1-(5-((1-(tert-butoxycarbonyl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate

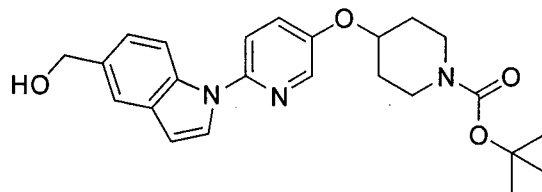


The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and methyl 1H-indole-5-carboxylate (0.615 g, 21%).

- 20 ¹H NMR (400 MHz, CDCl₃) δ; 1.46 (s, 9H), 1.80 (bs, 2H), 1.97 (bs, 2H), 3.34-3.38 (m, 2H), 3.73 (bs, 2H), 3.93 (s, 3H), 4.53 (bs, 1H), 6.76 (s, 1H), 7.40 (s, 2H), 7.65 (s, 1H), 7.98 (dd, *J* = 8.8, 2.8 Hz, 2H), 8.26 (s, 1H), 8.39 (s, 1H); MS: 452.1 (M+1).

- Example-94:** *tert*-Butyl-4-((6-(5-(hydroxymethyl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate

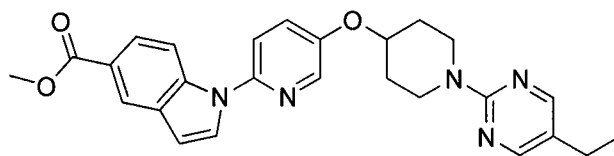
93



To a stirred solution of Example-96 (0.3g, 0.665 mmol) in dry THF, LiAlH_4 in THF (0.2 ml, 0.996mmol) was added at 0°C and stirred for 20 minutes. The reaction was quenched with methanol at 0°C , the reaction mixture was concentrated *in vacuo* and the residue was diluted with ethyl acetate and washed with water. The organic layer was separated, concentrated *in vacuo* and the resulting residue was purified by flash column chromatography to give the title compound (0.198 g, 70.46 %).

^1H NMR (400 MHz, CDCl_3) δ : 1.45 (s, 9H), 1.73-1.81 (m, 2H), 1.95-2.00 (m, 2H), 3.33-3.39 (m, 2H), 3.71-3.77 (m, 2H), 4.50-4.54 (m, 1H), 4.78 (s, 2H), 6.67 (d, $J = 3.2$ Hz, 1H), 7.29 (dd, $J = 8.8, 1.6$ Hz, 2H), 7.37-7.43 (m, 2H), 7.63 (d, $J = 3.2$ Hz, 1H), 7.65 (s, 1H), 8.02 (d, $J = 8.4$ Hz, 1H), 8.24(bs, 1H); MS: 424.23 (M+1).

Example-95: Methyl-1-(5-((1-(5-ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate

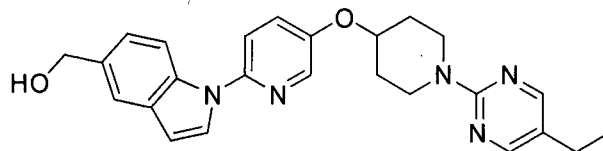


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-93 (0.220 g, 74.82%).

^1H NMR (400 MHz, CDCl_3) δ : 1.19 (t, $J = 7.6$ Hz, 3H), 1.83-1.90 (m, 2H), 2.04-2.11 (m, 2H), 2.47 (q, $J = 7.6$ Hz, 2H), 3.63-3.69 (m, 2H), 3.93 (s, 1H), 4.18-4.24 (m, 2H), 4.59-4.61 (m, 1H), 6.76 (d, $J = 3.2$ Hz, 1H), 7.43 (d, $J = 1.6$ Hz, 2H), 7.66 (d, $J = 3.6$ Hz, 2H), 7.95 (dd, $J = 8.8, 2.0$ Hz, 2H), 8.03 (d, $J = 8.8$ Hz, 1H), 8.18 (s, 2H), 8.28(s, 1H), 8.40 (s, 1H); MS: 458.1 (M+1).

Example-96: (1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl) methanol

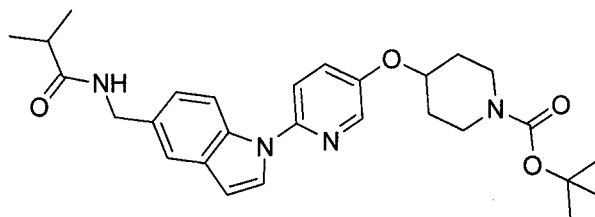
94



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-94 (0.008 g, 7.14%).

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.6 Hz, 3H), 1.84-1.88 (m, 2H), 2.05-2.11 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.63-3.69 (m, 2H), 4.19-4.25 (m, 2H), 4.58-4.62 (m, 1H), 4.79 (s, 2H), 6.67 (d, *J* = 3.2 Hz, 1H), 7.29 (dd, *J* = 8.8, 1.6 Hz, 2H), 7.42 (bs, 2H), 7.63-7.65 (m, 2H), 8.03 (d, *J* = 8.4 Hz, 1H), 8.19 (s, 2H), 8.27 (s, 1H); MS: 430.2 (M+1).

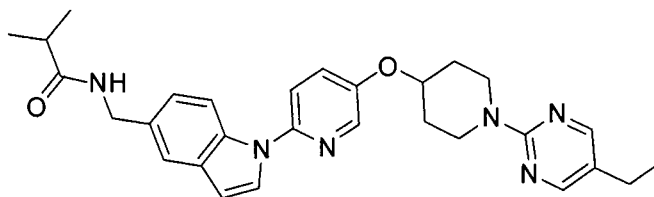
Example-97: *tert*-Butyl-4-((6-(5-(isobutyramido methyl)-1H-indol-1-yl) pyridin-3-yl) oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *N*-((1H-indol-5-yl) methyl) isobutyramide (intermediate 3) and *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 6) (0.103 g, 21.77%).

¹H NMR (400 MHz, CDCl₃) δ; 1.18 (d, *J* = 4 Hz, 6H), 1.47 (s, 9H), 1.77-1.82 (m, 2H), 1.95-1.99 (m, 2H), 2.35-2.38 (m, 1H), 3.33-3.39 (m, 2H), 3.70-3.76 (m, 2H), 4.51-4.53 (m, 3H), 5.67 (s, 1H), 6.65 (d, *J* = 3.2 Hz, 1H), 7.18 (dd, *J* = 8.8, 1.6 Hz, 1H), 7.36-7.41 (m, 2H), 7.55 (s, 1H), 7.61 (d, *J* = 3.6 Hz, 1H), 7.99 (d, *J* = 8.4 Hz, 1H), 8.24 (s, 1H); MS: 452.1 (M+1).

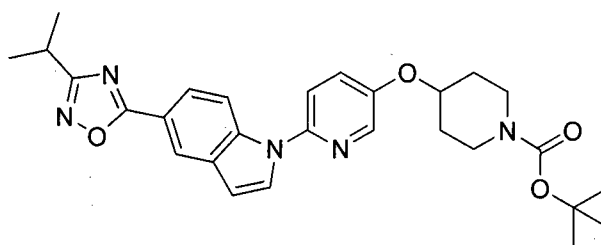
Example-98: *N*-((1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl) methyl)isobutyramide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-97 (0.070 g, 83.57%).

¹H NMR (400 MHz, CDCl₃) δ; 1.1-1.23 (m, 9H), 1.84-1.87 (m, 2H), 2.04-2.07 (m, 2H), 2.34-2.37 (m, 1H), 2.46 (q, *J* = 7.6 Hz, 2H), 3.61-3.68 (m, 2H), 4.17-4.22 (m, 2H), 4.52 (d, *J* = 5.6 Hz, 2H), 4.58- 4.60 (m, 1H), 5.67 (s, 1H), 6.64 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.18 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.40 (bs, 2H), 7.55 (bs, 1H), 7.62 (d, *J* = 3.6 Hz, 1H), 7.98-8.00 (m, 1H), 8.18 (s, 2H), 8.25-8.26 (m, 1H); MS: 522 (M+23).

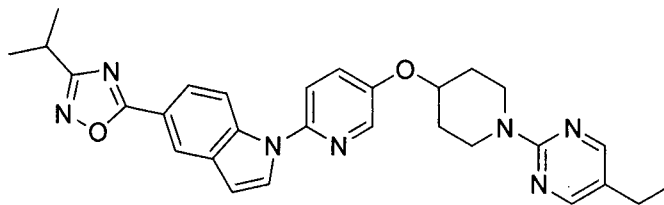
Example-99: *tert*-Butyl-4-((6-(5-(3-isopropyl-1, 2, 4-oxadiazol-5-yl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate



To a stirred solution of N'-hydroxyisobutyrimidamide (0.10g, 1.0 mmol) in dry THF (10 mL), NaH (0.078 g, 3.26 mmol) was added and stirred at 60°C for 2h. The reaction contents were brought to room temperature, Ethyl-1-(5-((1-(tert-butoxycarbonyl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate (0.205 g, 0.440 mmol) was added and stirred at 60°C for 3h. The reaction was quenched by methanol at 0°C and concentrated *in vacuo*. The resultant residue was dissolved with ethyl acetate and washed with water, the organic layer was separated, concentrated *in vacuo* and the resulting residue was purified by flash column chromatography to give the title compound (0.050 g, 10.16 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.44 (d, *J* = 7.2 Hz, 6H), 1.50 (s, 9H), 1.81-1.86 (m, 2H), 1.99-2.04 (m, 2H), 3.15-3.22 (s, 1H), 3.36-3.42 (m, 2H), 3.73- 3.79 (m, 2H), 4.55-4.59 (m, 1H), 6.82 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.45 (bs, 2H), 7.69 (d, *J* = 3.6 Hz, 1H), 8.03 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.13-8.16 (m, 1H), 8.30 (bs, 1H), 8.49 (bs, 1H); MS: 504.2 (M+1).

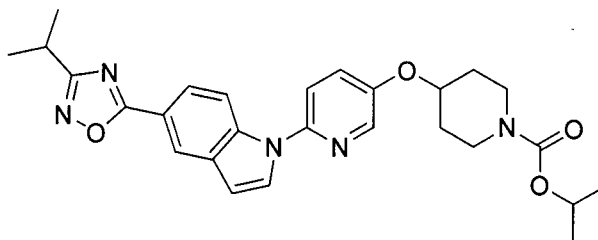
Example-100: 5-(1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl)-3-isopropyl-1, 2, 4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-99 (0.052 g, 55.60%).

¹H NMR (400 MHz, CDCl₃) δ; 1.22 (t, *J* = 7.2 Hz, 3H), 1.44 (d, *J* = 7.2 Hz, 6H), 1.87-1.92 (m, 2H), 2.09-2.13 (m, 2H), 2.50 (q, *J* = 7.6 Hz, 2H), 3.17-3.21 (m, 1H), 3.66-3.72 (m, 2H), 4.21-4.27 (m, 2H), 4.64 - 4.66 (m, 1H), 6.82 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.47-7.46 (m, 2H), 7.70 (d, *J* = 3.6 Hz, 1H), 8.04 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.15-8.17 (m, 1H), 8.21 (s, 2H), 8.32-8.33 (m, 1H), 8.49 (s, 1H).

Example-101: Isopropyl 4-((6-(5-(3-isopropyl-1, 2, 4-oxadiazol-5-yl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate

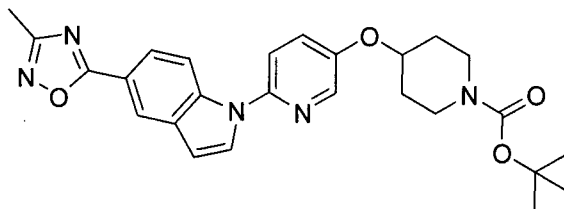


The title compound was prepared by following the similar procedure as described in Example-70 by using Example-99 (0.035 g, 43%).

¹H NMR (400 MHz, CDCl₃) δ; 1.28 (d, *J* = 6.0 Hz, 6H), 1.44 (d, *J* = 7.2 Hz, 6H), 1.82-1.87 (m, 2H), 1.99-2.03 (m, 2H), 3.15-3.21 (s, 1H), 3.42-3.48 (m, 2H), 3.76-3.82 (m, 2H), 4.57-4.60 (m, 1H), 4.93-4.99 (m, 1H), 6.82 (d, *J* = 3.2 Hz, 1H), 7.45 (s, 2H), 7.69 (d, *J* = 3.2 Hz, 1H), 8.03 (dd, *J* = 8.8, 1.2 Hz, 1H), 8.14-8.16 (m, 1H), 8.29-8.30 (m, 1H), 8.49 (bs, 1H); MS: 490.2 (M+1).

Example-102: *tert*-Butyl 4-((6-(5-(3-methyl-1, 2, 4-oxadiazol-5-yl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate

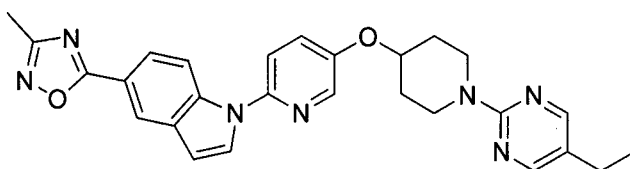
97



The title compound was prepared by following the similar procedure as described in Example-99 using Ethyl-1-(5-((1-(*tert*-butoxycarbonyl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate (intermediate 28) (0.615 g, 21.30%).

- 5 ^1H NMR (400 MHz, CDCl_3) δ : 1.46 (s, 9H), 1.55-1.83 (m, 2H), 1.95-2.00 (m, 2H), 2.46 (s, 3H), 3.33-3.39 (m, 2H), 3.70-3.76 (m, 2H), 4.51-4.56 (m, 1H), 6.78 (dd, $J = 3.6, 0.8$ Hz, 1H), 7.41 (s, 2H), 7.66 (d, $J = 3.6$ Hz, 1H), 7.99 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.12 (d, $J = 8.8$ Hz, 1H), 8.26-8.27 (m, 1H), 8.44 (s, 1H); MS: 476.2 (M+1).

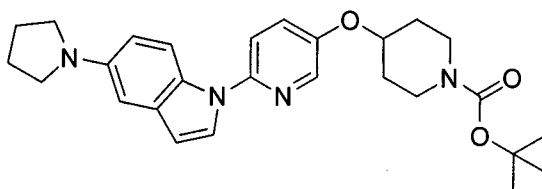
Example-103: 5-(1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl)-3-methyl-1, 2, 4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-102.

- 15 ^1H NMR (400 MHz, CDCl_3) δ : 1.20 (t, $J = 7.6$ Hz, 3H), 1.86-1.90 (m, 2H), 2.07-2.12 (m, 2H), 2.45-2.51 (m, 5H), 3.64-3.70 (m, 2H), 4.19-4.26 (m, 2H), 4.63-4.64 (m, 1H), 6.80 (d, $J = 3.2$ Hz, 1H), 7.45 (s, 1H), 7.69 (d, $J = 3.2$ Hz, 1H), 8.01 (dd, $J = 8.8, 1.6$ Hz, 2H), 8.15 (d, $J = 8.8$ Hz, 1H), 8.20 (s, 2H), 8.31-8.32 (m, 1H), 8.46 (s, 1H); MS: 482.2 (M+1).

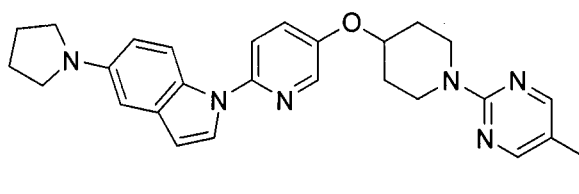
Example-104: *tert*-Butyl- 4-(((6-(5-(pyrrolidin-1-yl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 6) and *tert*-butyl-5-(pyrrolidin-1-yl)-1H-indole-1-carboxylate (intermediate 66) (0.030 g, 10.16%).

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.49 (s, 9H), 1.81 (s, 2H), 1.97 (s, 2H), 2.04(s, 4H) , 3.20-3.50 (m, 6H) , 3.75 (s, 2H), 4.50 (s, 1H), 6.55 (s, 1H), 6.70 (d, *J* = 8.8 Hz, 1H), 6.79 (s, 1H) , 7.35-7.41 (m, 2H), 7.57 (s, 1H), 7.96 (d, *J* = 8.8 Hz, 1H), 8.22 (s, 1H); MS: 463.3 (M+1).

Example-105: 1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-5-(pyrrolidin-1-yl)-1H-indole

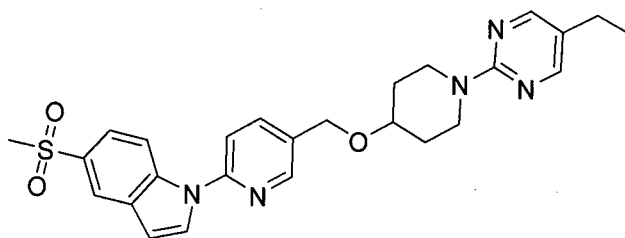


10

The title compound was prepared by following the similar procedure as described in Example-2 by using Example-104 (0.060 g, 64%).

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.56-1.87 (m, 2H), 2.01-2.10 (m, 6H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.32-3.35 (m, 4H), 3.61-3.68 (m, 2H), 4.19-4.25 (m, 2H), 4.55-4.57 (m, 1H), 6.55 (d, *J* = 3.2 Hz, 1H), 6.69 (dd, *J* = 8.8, 2.0 Hz, 1H), 6.78 (s, 1H) , 7.39-7.41 (m, 2H), 7.57 (d, *J* = 3.6 Hz, 1H), 7.96 (d, *J* = 9.2 Hz, 1H), 8.19 (s, 2H), 8.24 (s, 1H); MS: 469.3 (M+1).

Example-106: 1-(5-(((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) methyl) pyridin-2-yl)-5-(methylsulfonyl)-1H-indole

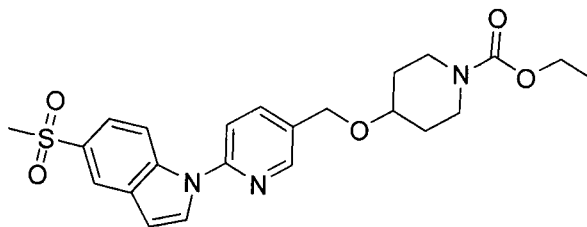


20

The title compound was prepared by following the similar procedure as described in Example-2 using *tert*-butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy)piperidine-1-carboxylate (intermediate 75) (0.055 g, 58%).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.64-1.73 (m, 2H), 2.00-2.04 (m, 2H), 2.46 (q, *J* = 7.6 Hz, 2H), 3.09 (s, 3H), 3.36-3.42 (m, 2H), 3.72-3.76 (m, 1H), 4.29-4.35 (m, 2H), 4.67 (s, 2H), 6.85 (d, *J* = 3.6 Hz, 1H), 7.48 (d, *J* = 8.4 Hz, 1H), 7.80-7.83 (m, 2H), 7.91 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.17 (s, 2H), 8.29 (s, 1H), 8.37 (d, *J* = 8.8 Hz, 1H), 8.57 (s, 1H); MS: 492.2 (M+1).

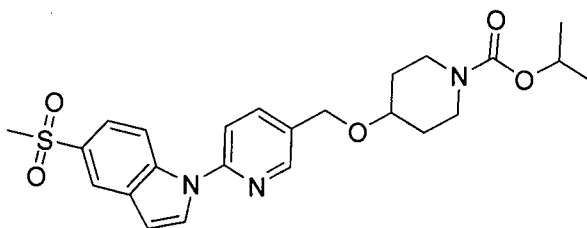
Example-107: Ethyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 using *tert*-butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carboxylate (intermediate 75) (0.038 g, 41%).

¹H NMR (400 MHz, CDCl₃) δ; 1.26 (t, *J* = 7.2 Hz, 3H), 1.53-1.69 (m, 2H), 1.91 (bs, 2H), 3.09 (s, 3H), 3.19-3.25 (m, 2H), 3.64-3.68 (m, 1H), 3.82 (bs, 2H), 4.13 (q, *J* = 7.2 Hz, 2H), 4.63 (s, 2H), 6.85 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.48 (d, *J* = 8.4 Hz, 1H), 7.80-7.83 (m, 2H), 7.89 (dd, *J* = 8.4, 2.4 Hz, 1H), 8.29 (d, *J* = 1.6 Hz, 1H), 8.38 (d, *J* = 8.8 Hz, 1H), 8.56 (bs, 1H); MS: 458.1 (M+1).

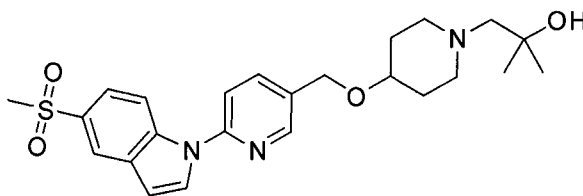
Example-108: Isopropyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl) methoxy) piperidine -1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 using *tert*-butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carboxylate (intermediate 75) (0.075 g, 80%).

¹H NMR (400 MHz, CDCl₃) δ; 1.24 (d, *J* = 6.4 Hz, 6H), 1.64-1.67 (m, 2H), 1.92 (bs, 2H), 3.11 (s, 3H), 3.18-3.24 (m, 2H), 3.65-3.71 (m, 1H), 3.84 (bs, 2H), 4.65 (s, 2H), 4.90-4.96 (m, 1H), 6.87 (dd, *J* = 3.6, 0.8 Hz, 1H), 7.52 (d, *J* = 9.2 Hz, 1H), 7.82-7.85 (m, 2H), 7.91 (dd, *J* = 8.4, 2.4 Hz, 1H), 8.31 (d, *J* = 1.6 Hz, 1H), 8.39 (d, *J* = 8.8 Hz, 1H), 8.56 (bs, 1H); MS: 472.08 (M+1).

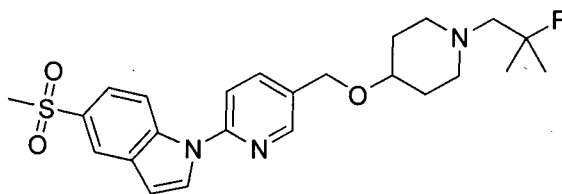
Example-109: 2-Methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl) methoxy)piperidin-1-yl) propan-2-ol



The title compound was prepared by following the similar procedure as described in Example-12 using *tert*-butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carboxylate (intermediate 75) (0.133 g, 48%).

¹H NMR (400 MHz, CDCl₃) δ; 1.14 (s, 6H), 1.70 (bs, 2H), 1.92 (bs, 2H), 2.30 (s, 2 H), 2.45 (bs, 2H), 2.88 (bs, 2H), 3.07 (s, 3H), 3.48 (bs, 1H), 4.60 (s, 2H), 6.83 (d, *J* = 3.6 Hz, 1H), 7.46 (d, *J* = 8 Hz, 1H), 7.78-7.80 (m, 1H), 7.81 (d, *J* = 2.0 Hz, 1H), 7.88 (dd, *J* = 8.4, 2.4 Hz, 1H), 8.28 (d, *J* = 1.6 Hz, 1H), 8.35 (d, *J* = 8.8 Hz, 1H), 8.54 (d, *J* = 2 Hz, 1H); MS: 458.1 (M+1).

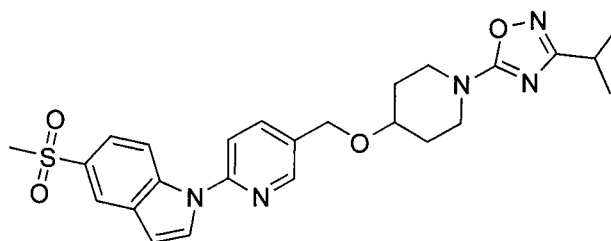
Example-110: 1-(5-(((1-(2-Fluoro-2-methylpropyl) piperidin-4-yl) oxy) methyl) pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-14 by using Example-109 (0.030 g, 27%).

¹H NMR (400 MHz, CDCl₃) δ; 1.31 (s, 3H), 1.37 (s, 3H), 1.64-1.72 (m, 2H), 1.91-1.94 (m, 2H), 2.28 (t, *J* = 9.6 Hz, 2H), 2.39 (s, 1H), 2.44 (s, 1H), 2.82-2.86 (m, 2H), 3.08 (s, 3H), 3.41-3.46 (m, 1H), 4.60 (s, 2H), 6.84 (d, *J* = 2.8 Hz, 1H), 7.45 (d, *J* = 8.4 Hz, 1H), 7.78-7.79 (m, 1H), 7.82 (d, *J* = 2 Hz, 1H), 7.88 (dd, *J* = 8.4, 2.4 Hz, 1H), 8.28 (d, *J* = 1.6 Hz, 1H), 8.35 (d, *J* = 9.2 Hz, 1H), 8.54 (d, *J* = 1.6 Hz, 1H); MS: 496.2 (M+1).

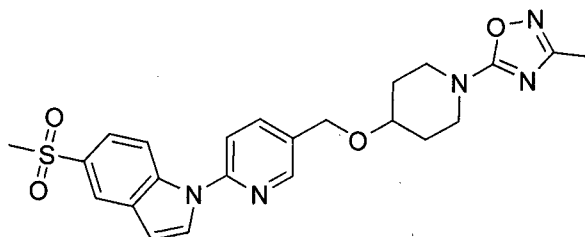
Example-111: 3-Isopropyl-5-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl)-1, 2, 4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 using 4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carbonitrile (intermediate 38) and N-hydroxy-isobutyramidine (0.010 g, 5.8%).

¹H NMR (400 MHz, CDCl₃) δ; 1.32 (d, *J* = 6.8 Hz, 6H), 1.82-1.86 (m, 2H), 2.02-2.06 (m, 2H), 2.89-2.93 (m, 1H), 3.12 (s, 3H), 3.48-3.54 (m, 2H), 3.77-3.79 (m, 1H), 3.87-3.88 (m, 2H), 4.68 (s, 2H), 6.88 (dd, *J* = 3.6, 0.4 Hz, 1H), 7.52 (d, *J* = 8.4 Hz, 1H), 7.83-7.86 (m, 2H), 7.92 (dd, *J* = 8.4, 2.4 Hz, 1H), 8.32 (d, *J* = 1.6 Hz, 1H), 8.42 (d, *J* = 8.8 Hz, 1H), 8.60 (d, *J* = 1.6 Hz, 1H); MS: 496.2 (M+1).

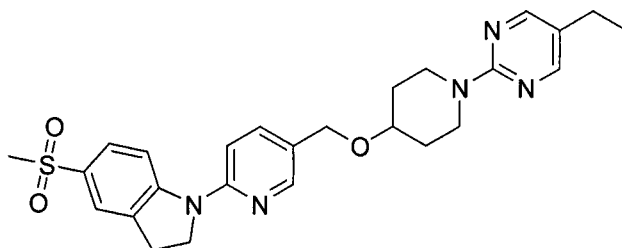
Example-112: 3-Methyl-5-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl)-1, 2, 4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 using 4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carbonitrile (intermediate 38) and N-hydroxyacetimidamide (0.014 g, 8%).

¹H NMR (400 MHz, CDCl₃) δ; 1.85-1.88 (m, 2H), 1.99-2.07 (m, 2H), 2.23 (s, 3H), 3.11(s, 3H), 3.49-3.55 (m, 2H), 3.77-3.81 (m, 1H), 3.85-3.91 (m, 2H), 4.67 (s, 2H), 6.87 (d, *J* = 3.2 Hz, 1H), 7.45-7.53 (m, 2H), 7.82-7.86 (m, 1H), 7.88-7.93 (m, 1H), 8.31-8.35 (m, 1H), 8.39-8.44 (m, 1H), 8.58 (bs, 1H); MS: 468.08 (M+1).

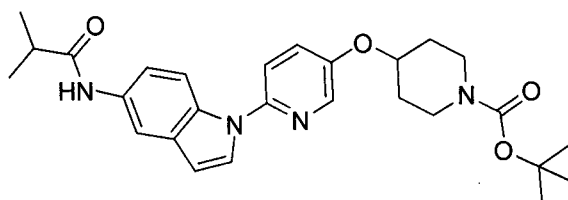
- 5 **Example-113:** 1-(5-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-5-(methylsulfonyl)indoline



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-46.

¹H NMR (400 MHz, CDCl₃) δ; 1.81 (t, *J* = 7.6 Hz, 3H), 1.309-1.41 (m, 2H), 1.92-1.95 (m, 2H), 2.07-2.13 (m, 1H), 2.46 (q, *J* = 7.6 Hz, 2H), 2.87-2.94 (m, 2H), 3.02 (s, 3H), 3.25 (t, *J* = 17.6 Hz, 2H), 3.86 (d, *J* = 6.4 Hz, 2H), 4.11 (t, *J* = 8.8 Hz, 2H), 4.76-4.80 (m, 2H), 6.78 (d, *J* = 9.2 Hz, 1H), 7.25-7.28 (m, 1H), 7.64 (bs, 1H), 7.71 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.09 (d, *J* = 2.8 Hz, 1H), 8.14 (s, 1H), 8.17 (s, 2H); MS: 494.2 (M+1).

Example-114: *tert*-Butyl 4-(((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

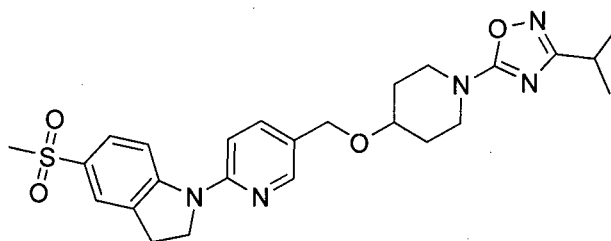


The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 06) and N-(1H-indol-5-yl)isobutyramide (intermediate 10).

¹H NMR (400 MHz, CDCl₃) δ; 1.29 (d, *J* = 7.2 Hz, 6H), 1.48 (s, 9H), 1.813-1.814 (m, 2H), 1.95-2.00 (m, 2H), 2.50-2.57 (m, 1H), 3.33-3.39 (m, 2H), 3.71-3.77 (m, 2H), 4.50-4.52 (m, 1H), 6.63(d, *J* = 3.2Hz, 1H), 7.21 (s, 1H), 7.23 (d, *J* = 2.4 Hz, 1H), 7.38-7.39 (m, 2H), 7.60(d, *J* = 3.6 Hz, 1H), 7.95 (d, *J* = 2.0 Hz, 1H), 8.00 (d, *J* = 8.8 Hz, 1H), 8.23-8.24 (m, 1H);

5 MS: 481 (M+1).

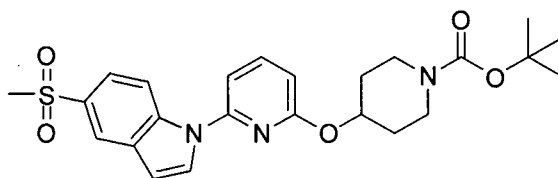
Example-115: 3-Isopropyl-5-(4-((6-(5-(methylsulfonyl) indolin-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl)-1, 2, 4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 by using Example-46 (0.010 g, 5%).

¹H NMR (400 MHz, CDCl₃) δ; 1.30 (d, *J* = 6.8 Hz, 6H), 1.75-1.83 (m, 2H), 1.95-2.00 (m, 2H), 2.87-2.94 (m, 1H), 3.05 (s, 3H), 3.31(t, *J* = 8.8 Hz, 2H), 3.44-3.50 (m, 2H), 3.69-3.85 (m, 1H), 3.86- 3.90 (m, 2H), 4.17 (t, *J* = 8.8 Hz, 2H), 4.56 (s, 2H), 6.82 (d, *J* = 8.4 Hz, 1H), 7.70 (bs, 2H), 7.77 (d, *J* = 8.8 Hz, 1H), 8.37-8.42 (m, 2H); MS: 498.2 (M+1).

15 **Example-116:** *tert*-Butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-2-yl)oxy)-piperidine-1-carboxylate

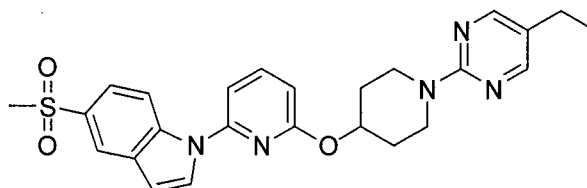


The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate 21) and *tert*-butyl 4-((6-chloropyridin-2-yl)oxy)piperidine-1-carboxylate (intermediate 42) (0.19 g, 63%).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.79-1.85 (m, 2H), 2.02-2.06 (m, 2H), 3.10 (s, 3H), 3.30-3.36 (m, 2H), 3.78-3.82 (m, 2H), 5.26-5.30 (m, 1H), 6.69 (d, *J* = 8.4 Hz, 1H), 6.83

(d, $J = 3.2$ Hz, 1H), 7.03 (d, $J = 8$ Hz, 1H), 7.73-7.82 (m, 3H), 8.29-8.30 (m, 2H); MS: 372 (M-100)

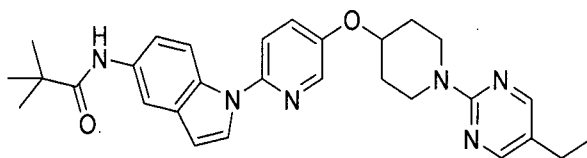
Example-117: 1-(6-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-116 (0.054 g, 24%).

^1H NMR (400 MHz, CDCl_3) δ : 1.19 (t, $J = 7.6$ Hz, 3H), 1.85-1.93 (m, 2H), 2.12-2.16 (m, 2H), 2.47 (q, $J = 7.6$ Hz, 2H), 3.10 (s, 3H), 3.61-3.67 (m, 2H), 4.24-4.30 (m, 2H), 5.38-5.40 (m, 1H), 6.70 (d, $J = 8.0$ Hz, 1H), 6.84 (d, $J = 3.6$ Hz, 1H), 7.03 (d, $J = 7.6$ Hz, 1H), 7.74-7.78 (m, 1H), 7.79-7.82 (m, 2H), 8.19 (s, 2H), 8.29 (d, $J = 1.2$ Hz, 1H), 8.35 (d, $J = 8.8$ Hz, 1H); MS: 478 (M+1).

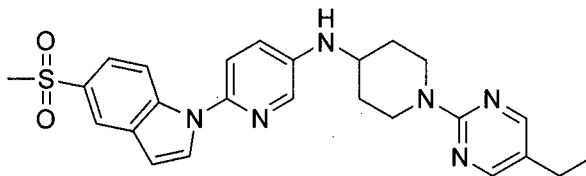
Example-118: *N*-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)pivalamide



The title compound was prepared by following the similar procedure as described in Example-2 using *tert*-butyl 4-((6-(5-pivalamido-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 30).

^1H NMR (400 MHz, CDCl_3) δ : 1.2 (t, $J = 7.6$ Hz, 3H), 1.35 (s, 9H), 1.84-1.88 (m, 2H), 2.05-2.10 (m, 2H), 2.47 (q, $J = 7.6$ Hz, 2H), 3.62-3.68 (m, 2H), 4.19-4.25 (m, 2H), 4.58-4.60 (m, 1H), 7.24-7.27 (m, 2H), 7.39-7.41 (m, 3H), 7.61 (d, $J = 3.2$ Hz, 1H), 7.96 (d, $J = 2.0$ Hz, 1H), 8.01 (d, $J = 8.8$ Hz, 1H), 8.19 (s, 2H), 8.26 - 8.27 (m, 1H); MS: 499 (M+1).

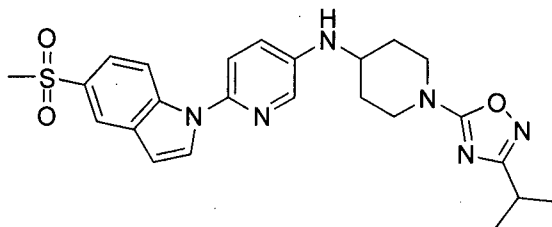
Example-119: *N*-(1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)-6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-amine



The title compound was prepared by following the similar procedure as described in Example-2 using *tert*-butyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl) amino)-piperidine-1-carboxylate (Intermediate 31).

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.6 Hz, 3H), 1.43-1.53 (m, 2H), 2.17-2.20 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.08 (s, 3H), 3.12-3.19 (m, 2H), 3.60 (bs, 1H), 3.77 (bs, 2H), 4.65-4.70 (m, 2H), 6.79 (dd, *J* = 3.2, 0.8 Hz, 1H), 7.11 (dd, *J* = 8.8, 3.2 Hz, 1H), 7.29 (d, *J* = 8.4 Hz, 1H), 7.67 (d, *J* = 3.6 Hz, 1H), 7.76 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.00 (d, *J* = 2.8 Hz, 1H), 8.06 (d, *J* = 8.8 Hz, 1H), 8.19 (s, 2H), 8.29 (d, *J* = 1.6 Hz, 1H); MS: 477(M+1).

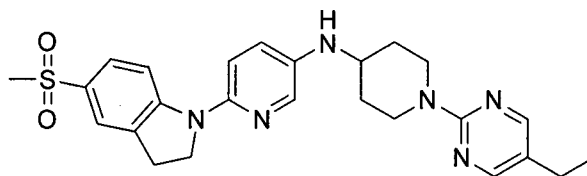
- 10 **Example-120:** *N*-(1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)-6-(5-(methyl sulfonyl)-1H-indol-1-yl)pyridin-3-amine



The title compound was prepared by following the similar procedure as described in Example-4 using *tert*-butyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)amino)-piperidine-1-carboxylate (intermediate 31).

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 1.29 (d, *J* = 6.8 Hz, 6H), 1.53-1.54 (m, 2H), 2.19-2.23 (m, 2H), 2.86-2.93 (m, 1H), 3.09 (s, 3H), 3.25-3.32 (m, 2H), 3.57-3.59 (m, 1H), 3.78 (d, *J* = 8.0 Hz, 1H), 4.19-4.15 (m, 2H), 6.80 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.11 (dd, *J* = 8.8, 3.2 Hz, 1H), 7.30 (d, *J* = 8.8 Hz, 1H), 7.67 (d, *J* = 3.6 Hz, 1H), 7.77 (dd, *J* = 8.8 Hz, 1H), 8.00 (d, *J* = 2.8 Hz, 1H), 8.07 (d, *J* = 8.8 Hz, 1H), 8.29 (d, *J* = 1.6 Hz, 1H); MS: 481 (M+1).

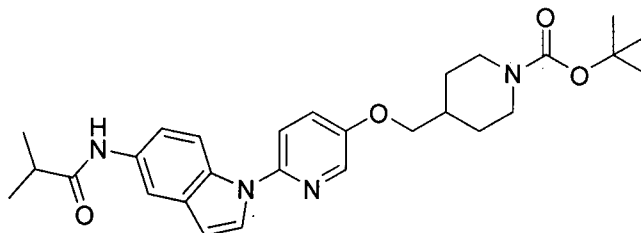
- 20 **Example-121:** *N*-(1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)-6-(5-(methylsulfonyl)-indolin-1-yl)pyridin-3-amine



The title compound was prepared by following the similar procedure as described in Example-2 using *tert*-butyl 4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)amino)-piperidine-1-carboxylate. (Intermediate 32).

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.21 (t, *J* = 7.2 Hz, 3H), 1.39-1.45 (m, 2H), 2.15-2.19 (m, 2H), 2.49 (q, *J* = 7.6 Hz, 2H), 3.04 (s, 3H), 3.10-3.17 (m, 2H), 3.25 (t, *J* = 8.8 Hz, 2H), 3.40 (bs, 1H), 3.54 (bs, 1H), 4.12 (t, *J* = 8.8 Hz, 2H), 4.66-4.69 (m, 2H), 6.79 (d, *J* = 8.8 Hz, 1H), 7.07 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.64 (s, 1H), 7.71 (dd, *J* = 8.4, 2.0 Hz, 1H), 7.91 (d, *J* = 2.4 Hz, 1H), 8.02 (d, *J* = 8.8 Hz, 1H), 8.20 (s, 2H); MS: 479 (M+1).

- 10 **Example-122:** *tert*-Butyl-4-(((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)-methyl)piperidine-1-carboxylate

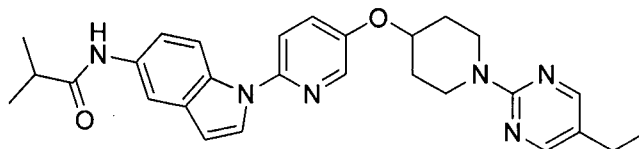


The title compound was prepared by following the similar procedure as described in Example-1 using N-(1H-indol-5-yl)isobutyramide (intermediate 10) and *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)methyl)piperidine-1-carboxylate (intermediate 29).

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 1.28 (d, *J* = 6.8 Hz, 6H), 1.47 (s, 9H), 1.83-1.86 (m, 2H), 1.96-2.04 (m, 1H), 2.49-2.56 (m, 1H), 2.76 (bs, 2H), 3.89 (d, *J* = 6Hz, 2H), 4.09-4.18 (m, 2H), 6.63 (d, *J* = 3.2Hz, 1H), 7.23-7.28 (m, 2H), 7.33-7.39 (m, 2H), 7.59 (d, *J* = 3.6 Hz, 1H), 7.94-7.98 (m, 2H), 8.21 (d, *J* = 2.4 Hz, 1H); MS: 448 (M+1).

- 20 **Example-123:** *N*-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide

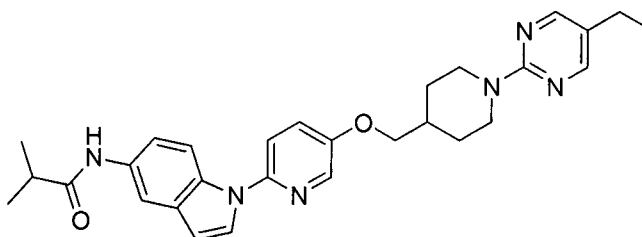
107



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-114.

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.29 (d, *J* = 6.8 Hz, 6H), 1.83-1.90 (m, 2H), 2.04-2.10 (m, 2H), 2.44-2.57 (m, 3H), 3.62-3.68 (m, 2H), 4.19-4.25 (m, 2H), 4.57-4.60 (m, 1H), 6.63 (d, *J* = 3.2 Hz, 1H), 7.21 (s, 1H), 7.40 (s, 2H), 7.61 (d, *J* = 3.2 Hz, 1H), 7.96 (d, *J* = 2 Hz, 1H), 8.00 (d, *J* = 8.8 Hz, 1H), 8.19 (s, 2H), 8.26 (bs, 1H); MS: 485 (M+1).

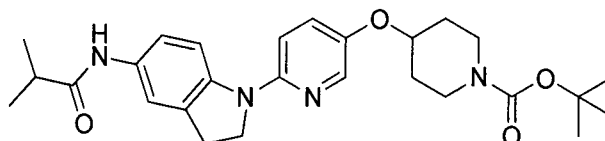
Example-124: *N*-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)methoxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-122.

¹H NMR (400 MHz, CDCl₃) δ; 1.18 (t, *J* = 7.6 Hz, 3H), 1.28 (d, *J* = 6.8 Hz, 6H), 1.33-1.43 (m, 2H), 1.94-1.97 (m, 2H), 2.10-2.16 (m, 1H), 2.43-2.56 (m, 3H), 2.89-2.96 (m, 2H), 3.92 (d, *J* = 6.4 Hz, 2H), 4.78-4.81 (m, 2H), 6.62 (d, *J* = 3.6 Hz, 1H), 7.21 (s, 1H), 7.24 - 7.27 (m, 1H), 7.36-7.39 (m, 2H), 7.59 (d, *J* = 3.6 Hz, 1H), 7.95-7.96 (m, 1H), 7.98 (s, 1H), 8.81 (s, 2H), 8.22 (d, *J* = 2.0 Hz, 1H); MS: 499 (M+1).

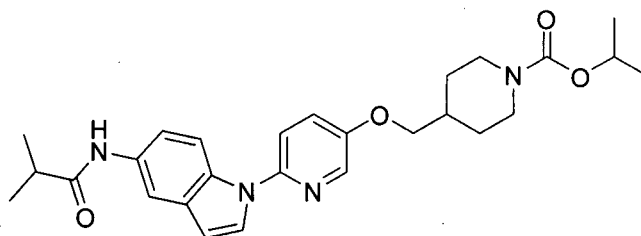
Example-125: *tert*-Butyl 4-((6-(5-isobutyramidoindolin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate.



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 6) and *N*-(indolin-5-yl)isobutyramide (intermediate 50) (0.017g, 14%).

¹H NMR (400 MHz, DMSO-*d*₆) δ; 1.07 (d, *J* = 7.2 Hz, 6H), 1.40 (s, 9H), 1.46-1.55 (m, 2H), 1.85-1.90 (m, 2H), 2.52-2.54 (m, 1H), 3.11-3.15 (m, 4H), 3.64-3.69 (m, 2H), 3.91-3.96 (m, 2H), 4.42-4.46 (m, 1H), 6.78 (d, *J* = 9.2 Hz, 1H), 7.23 (dd, *J* = 8.4, 2.0 Hz, 1H), 7.44 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.49 (d, *J* = 1.6 Hz, 1H), 8.01 (d, *J* = 8.4 Hz, 1H), 8.05 (d, *J* = 3.2 Hz, 1H), 9.62 (s, 1H); MS: 481 (M+1).

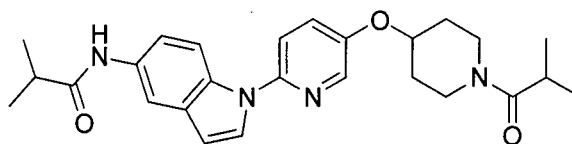
Example-126: Isopropyl 4-(((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)methyl)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-122 (0.023 g, 10%).

¹H NMR (400 MHz, CDCl₃) δ; 1.24-1.36 (m, 14H), 1.88-1.84 (m, 2H), 2.01-2.04 (m, 1H), 2.50-2.56 (m, 1H), 2.77-2.83 (m, 2H), 3.90 (d, *J* = 6.4 Hz, 2H), 4.23 (bs, 2H), 4.90-4.96 (m, 1H), 6.63 (d, *J* = 3.2 Hz, 1H), 7.22-7.28 (m, 2H), 7.33-7.39 (m, 2H), 7.60 (d, *J* = 3.2 Hz, 1H), 7.94-7.98 (m, 2H), 8.21 (d, *J* = 2.4 Hz, 1H); MS: 479 (M+1).

Example-127: *N*-(1-(5-((1-isobutyrylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide

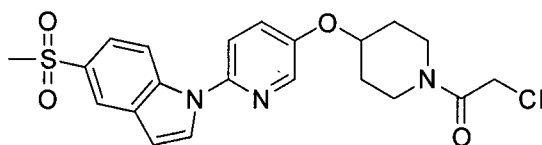


To a stirred solution of Example-114 (0.135 g, 0.282 mmol) in dichloromethane (5 mL), trifluoroacetic acid (1 mL) was added at 0°C and stirred for 2-3 h. The reaction mixture was concentrated *in vacuo* and the resultant residue was dissolved in anhydrous DMF (5 mL), DIPEA (0.145 mL, 0.846 mmol), O-Benzotriazole-*N,N,N',N'*-tetramethyl-uronium-

hexafluoro-phosphate (0.213 g, 0.564 mmol), isobutyric acid (0.026 mL, 0.564 mmol) were added and stirred at room temperature for 18h. The reaction was quenched with water and the organic layer was extracted with ethyl acetate, combined organic layers were dried over Na_2SO_4 , filtered and concentrated *in vacuo*. The resultant residue was purified by flash column chromatography to give N-(1-(5-((1-isobutyrylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide (0.035g, 26.6%).

^1H NMR (400 MHz, CDCl_3) δ : 1.15 (d, J = 6.8 Hz, 6H), 1.29 (d, J = 6.8 Hz, 6H), 1.86 (bs, 2H), 2.0-2.01 (m, 2H), 2.50-2.55 (m, 1H), 2.81-2.87 (m, 1H), 3.49 (bs, 1H), 3.64-3.70 (m, 1H), 3.79-3.86 (m, 2H), 4.58-4.61 (m, 1H), 6.64 (d, J = 3.2 Hz, 1H), 7.20 (s, 1H), 7.29 (d, J = 2.0 Hz, 1H), 7.39-7.40 (m, 2H), 7.61 (d, J = 3.2 Hz, 1H), 7.95 (d, J = 2Hz, 1H), 8.01 (d, J = 8.8 Hz, 1H), 8.24-8.25 (m, 1H); MS: 449 (M+1).

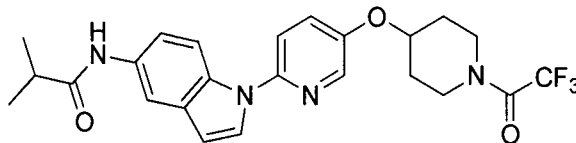
Example-128: 2-Chloro-1-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone



To a stirred solution of example-1 (0.375g, 0.212mmol) in dichloromethane (5 mL) trifluoroacetic acid (0.5 mL) was added at 0°C and stirred at room temperature for 2-3h. The solvent was removed *in vacuo*, the resultant residue was dissolved in dichloromethane (3ml), triethylamine (0.165ml, 1.190mmol) and chloroacetyl chloride (0.063ml, 0.793mmol) were added and stirred at room temperature for 2h. The reaction mixture was diluted with dichloromethane (25ml) and washed with water (10ml). The organic layer was separated, concentrated under reduced pressure and the resultant residue was purified by flash column chromatography to give 2-chloro-1-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone (0.240 g, 67%).

^1H NMR (400 MHz, CDCl_3) δ : 2.00-2.15 (m, 4H), 3.11 (s, 3H), 3.56-3.61 (m, 1H), 3.77-3.83 (m, 3H), 4.13-4.16 (m, 2H), 4.69-4.72 (m, 1H), 6.85 (d, J = 3.2 Hz, 1H), 7.43-7.49 (m, 2H), 7.75 (d, J = 3.2 Hz, 1H), 7.82 (dd, J = 7.2, 1.6 Hz, 1H), 8.22 (d, J = 8.8 Hz, 1H), 8.32 (d, J = 1.6 Hz, 1H); MS: 448 (M^+).

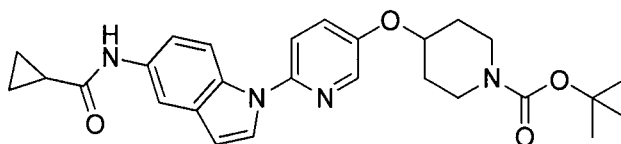
Example-129: *N*-(1-(5-((1-(2,2,2-Trifluoroacetyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide



To a stirred solution of Example-117 (0.15g, 0.313mmol) in dichloromethane (5 mL), trifluoroacetic acid (2 mL) was added at 0°C and stirred at room temperature for 1h. The reaction mixture was concentrated *in vacuo*, the resultant residue was dissolved in dry dichloromethane (5 mL), triethylamine (0.174 mL, 1.252 mmol) and trifluoroacetic anhydride (0.048 mL, 0.313 mmol) were added at 0°C and stirred for 1hr. The reaction was quenched with water and the organic layer was extracted with dichloromethane. The organic layer was separated, concentrated *in vacuo*, and the residue obtained was purified by flash column chromatography to give *N*-(1-(5-((1-(2,2,2-trifluoroacetyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide.

¹H NMR (400 MHz, CDCl₃) δ; 1.28 (d, *J* = 6.8 Hz, 6H), 1.99-2.02 (m, 4H), 2.50-2.55 (m, 1H), 3.65-3.81 (m, 3H), 3.89-3.94 (m, 1H), 4.66-4.68 (m, 1H), 6.64 (d, *J* = 3.2 Hz, 1H), 7.23 (s, 1H), 7.28 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.37-7.40 (m, 2H), 7.60 (d, *J* = 3.2 Hz, 1H), 7.95 (d, *J* = 2.0 Hz, 1H), 8.01 (d, *J* = 8.8 Hz, 1H), 8.24 (d, *J* = 1.6 Hz, 1H); MS: 475 (M+1).

Example-130: *tert*-Butyl 4-((6-(5-(cyclopropanecarboxamido)-1H-indol-1-yl)pyridine-3-yl)oxy)piperidine-1-carboxylate

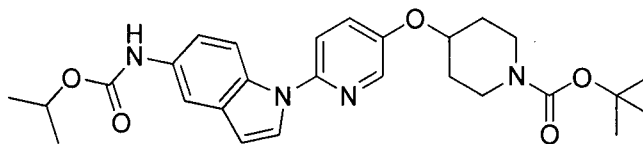


The title compound was prepared by following the similar procedure as described in Example-1 using *N*-(1H-indol-5-yl)cyclopropanecarboxamide (intermediate-02) and *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate- 06).

¹H NMR (400 MHz, CDCl₃) δ; 0.82-0.85 (m, 2H), 1.08-1.12 (m, 2H), 1.23-1.27 (m, 1H), 1.47 (s, 9H), 1.77-1.82 (m, 2H), 1.95-1.99 (m, 2H), 3.32-3.39 (m, 2H), 3.70-3.77 (m, 2H), 4.50-4.52 (m, 1H), 6.62 (d, *J* = 3.2 Hz, 1H), 7.28 (s, 1H), 7.38 (s, 2H), 7.44 (s, 1H), 7.59 (d, *J*

= 3.2 Hz, 1H), 7.92 (d, J = 1.2 Hz, 1H), 7.99 (d, J = 8.8 Hz, 1H), 8.23 (bs, 1H); MS: 477 (M+1).

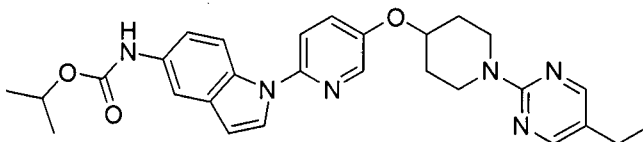
Example-131: *tert*-Butyl-4-((6-(5-((isopropoxycarbonyl)amino)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate- 06) and Isopropyl 1H-indol-5-ylcarbamate (intermediate 78).

^1H NMR (400 MHz, CDCl_3) δ : 1.31 (d, J = 6.0 Hz, 6H), 1.57 (s, 9H), 1.77-1.83 (m, 2H), 1.95-2.00 (m, 2H), 3.30-3.39 (m, 2H), 3.71-3.77 (m, 2H), 4.49-4.53 (m, 1H), 5.02-5.05 (m, 1H), 6.55 (bs, 1H), 6.62 (dd, J = 3.6, 0.8 Hz, 1H), 7.17 (dd, J = 8.8, 2.0 Hz, 1H), 7.38-7.38 (m, 2H), 7.60 (d, J = 3.2 Hz, 1H), 7.75 (bs, 1H), 7.99 (d, J = 8.8 Hz, 1H), 8.22-8.23 (m, 1H); MS: 495 (M+1).

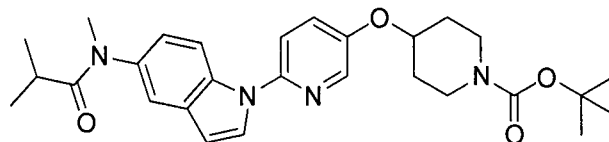
Example-132: Isopropyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate



The title compound was prepared by following the similar procedure as described in Example- 2 by using Example-131.

^1H NMR (400 MHz, CDCl_3) δ : 1.19 (t, J = 7.6 Hz, 3H), 1.31 (d, J = 6.4 Hz, 6H), 1.83-1.88 (m, 2H), 2.05-2.10 (m, 2H), 2.47 (q, J = 7.6 Hz, 2H), 3.62-3.68 (m, 2H), 4.19-4.25 (m, 2H), 4.58-4.61 (m, 1H), 5.01-5.07 (m, 1H), 6.56 (bs, 1H), 6.62 (d, J = 3.2 Hz, 1H), 7.17 (d, J = 8.8 Hz, 1H), 7.40 (s, 2H), 7.60 (d, J = 3.6 Hz, 1H), 7.76 (bs, 1H), 7.99 (d, J = 8.8 Hz, 1H), 8.19 (s, 2H), 8.26(s, 1H); MS: 395.48 (M-100).

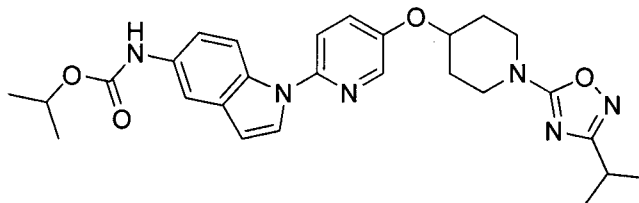
Example-133: *tert*-Butyl- 4-((6-(5-(N-methylisobutyramido)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



To a solution of Example-131 (0.05g, 0.104mmol) in anhydrous DMF (10 mL), sodium hydride (0.006 g, 0.216 mmol) and methyl iodide (0.022 g, 0.156 mmol) were added at 0°C and stirred at 60°C for 4-5h. The reaction was quenched with water and the organic layer was
 5 extracted with ethyl acetate. The organic layer was separated, concentrated *in vacuo* and the resultant residue was purified by flash column chromatography to give *tert*-butyl 4-((6-(5-(N-methylisobutyramido)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate (0.021g, 41%).

¹H NMR (400 MHz, CDCl₃) δ; 1.02 (d, *J* = 6.8 Hz, 6H), 1.48 (s, 9H), 1.60-1.83 (m, 2H),
 10 1.96-2.02 (m, 2H), 2.56-2.60 (m, 1H), 3.30 (s, 3H), 3.34-3.44 (m, 2H), 3.71-3.77 (m, 2H), 4.53-4.55 (m, 1H), 6.70 (d, *J* = 3.2Hz, 1H), 7.70 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.41 (d, *J* = 1.6 Hz, 2H), 7.46 (d, *J* = 2.0 Hz, 1H), 7.65 (d, *J* = 3.2 Hz, 1H), 8.10 (d, *J* = 8.8 Hz, 1H), 8.26-8.26 (m, 1H); MS: 493 (M+1).

Example-134: Isopropyl (1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate
 15

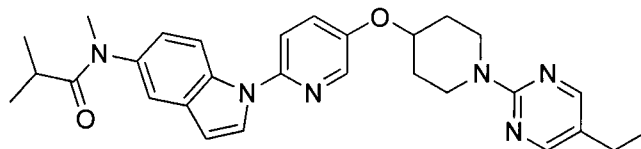


The title compound was prepared by following the similar procedure as described in Example-4 by using Example-131.

¹H NMR (400 MHz, CDCl₃) δ; 1.25-1.30 (m, 12H), 1.93-1.99 (m, 2H), 2.03-2.08 (m, 2H),
 20 2.85-2.92 (m, 1H), 3.60-3.67 (m, 2H), 3.80-3.87 (m, 2H), 4.58-4.60 (m, 1H), 5.00-5.03 (m, 1H), 6.54 (s, 1H), 6.61 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.35-7.38 (m, 2H), 7.58 (d, *J* = 3.2 Hz, 1H), 7.74 (bs, 1H), 7.98 (d, *J* = 8.8 Hz, 1H), 8.22-8.23 (m, 1H); MS: 505 (M+1).

Example-135: *N*-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)-*N*-methylisobutyramide

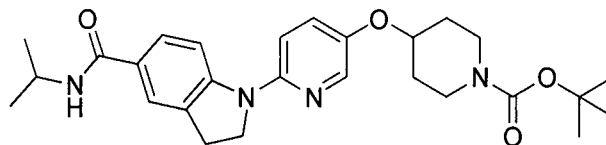
113



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-133.

¹H NMR (400 MHz, CDCl₃)δ; 1.01 (d, *J* = 6.8 Hz, 6H), 1.19 (t, *J* = 7.6 Hz, 3H), 1.84-1.90 (m, 2H), 2.05-2.11 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 2.56-2.59 (m, 1H), 3.29 (s, 3H), 3.63-3.69 (m, 2H), 4.18-4.24 (m, 2H), 4.59-4.63 (m, 1H), 6.69 (d, *J* = 3.6 Hz, 1H), 7.06 (dd, *J* = 8.8, 2.4 Hz, 1H), 7.39-7.45 (m, 3H), 7.65 (d, *J* = 3.2 Hz, 1H), 8.09 (d, *J* = 8.8 Hz, 1H), 8.19 (s, 2H), 8.28 (d, *J* = 2.0 Hz, 1H); MS: 499 (M+1).

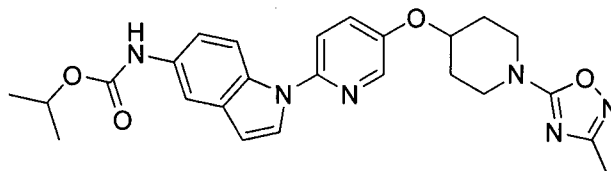
Example-136: *tert*-Butyl-4-((6-(5-(isopropylcarbamoyl)indolin-1-yl)pyridin-3-yl)-oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 06) and N-isopropylindoline-5-carboxamide (Intermediate 64).

¹H NMR (400 MHz, CDCl₃) δ; 1.26 (d, *J* = 6.4 Hz, 6H), 1.48 (s, 9H), 1.71-1.79 (m, 2H), 1.96-1.96 (m, 2H), 3.23 (t, *J* = 8.8 Hz, 2H), 3.28-3.34 (m, 2H), 3.76-3.77 (m, 2H), 4.07 (t, *J* = 8.8 Hz, 2H), 4.24-4.31 (m, 1H), 4.33-4.36 (m, 1H), 5.81 (d, *J* = 7.6 Hz, 1H), 6.78 (d, *J* = 8.8 Hz, 1H), 7.29 (d, *J* = 3.2 Hz, 1H), 7.54 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.62 (s, 1H), 8.05 (d, *J* = 8.4 Hz, 1H), 8.01 (d, *J* = 3.2 Hz, 1H); MS: 481 (M+1).

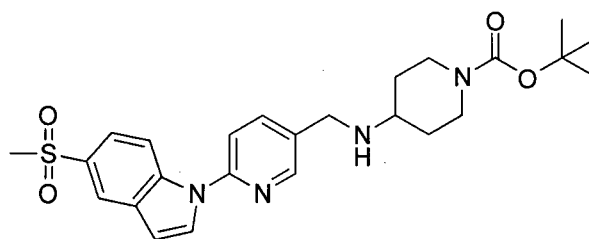
Example-137: Isopropyl (1-(5-((1-(3-methyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate



Example-137 was prepared according to procedure described in Example-4 by using Example-131

¹H NMR (400 MHz, CDCl₃)δ; 1.30 (d, *J* = 6.4 Hz, 6H), 1.95-2.01 (m, 2H), 2.03-2.09 (m, 2H), 2.22 (s, 3H), 3.62-3.69 (m, 2H), 3.80-3.87 (m, 2H), 4.61-4.62 (m, 1H), 5.01-5.04 (m, 1H), 6.55 (bs, 1H), 6.62 (d, *J* = 3.2 Hz, 1H), 7.16 (dd, *J* = 8.8, 1.6 Hz, 1H), 7.39 (s, 2H), 7.59 (d, *J* = 3.6 Hz, 1H), 7.74 (bs, 1H), 7.99 (d, *J* = 8.8 Hz, 1H), 8.23 (m, 1H); MS: 477 (M+1).

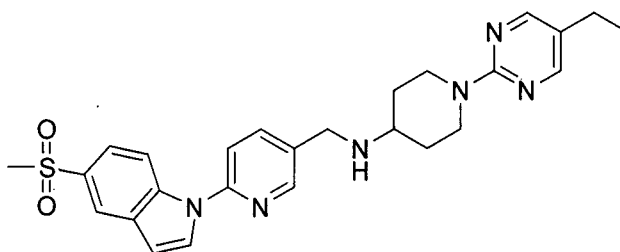
Example-138: *tert*-Butyl-4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)methyl)amino)piperidine-1-carboxylate.



The title compound was prepared by following the similar procedure as described in example-1 using 5-(methylsulfonyl)-1H-indole (intermediate 21) and *tert*-butyl-4-(((6-chloropyridin-3-yl)methyl)amino)piperidine-1-carboxylate (intermediate 79).

¹H NMR (400 MHz, CDCl₃) δ; 1.31-1.34 (m, 2H), 1.46 (s, 9H), 1.89-1.92 (m, 2H), 2.69-2.74 (m, 1H), 2.80-2.86 (m, 2H), 3.09 (s, 3H), 3.92 (s, 2H), 4.05 (bs, 2H), 6.85 (d, *J* = 3.2 Hz, 1H), 7.46 (d, *J* = 8.4 Hz, 1H), 7.79-7.83 (m, 2H), 7.91 (dd, *J* = 8.4, 2.0 Hz, 1H), 8.29 (d, *J* = 1.6 Hz, 1H), 8.36 (d, *J* = 8.8 Hz, 1H), 8.54 (d, *J* = 1.6 Hz, 1H); MS: 429 (M-56).

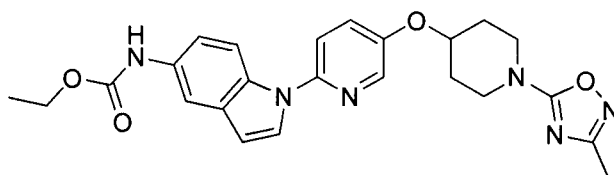
Example-139: 1-(5-Ethylpyrimidin-2-yl)-N-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)methyl)piperidin-4-amine



The title compound was prepared by following the similar procedure as described in Example- 2 by using Example-138.

^1H NMR (400 MHz, CDCl_3) δ : 1.16 (t, $J = 7.6$ Hz, 3H), 1.20-1.28 (m, 2H), 2.02-2.11 (m, 2H), 2.43 (q, $J = 7.6$ Hz, 2H), 2.61-2.66 (m, 2H), 2.81-2.91 (m, 2H), 3.05 (s, 3H), 4.04 (s, 2H), 4.70-4.73 (m, 2H), 6.78 (d, $J = 3.2$ Hz, 1H), 7.43 (d, $J = 8.0$ Hz, 1H), 7.75-7.79 (m, 2H), 8.09-8.14 (m, 2H), 8.21 (s, 1H), 8.41-8.45 (m, 2H), 8.63 (s, 1H); MS: 491 (M+1).

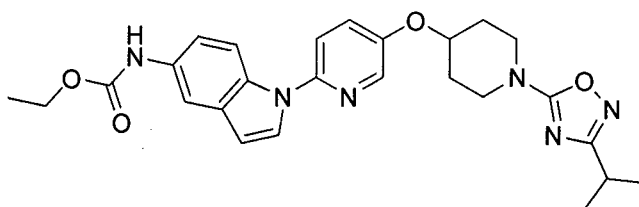
- 5 **Example-140:** Ethyl (1-(5-((1-(3-methyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy) pyridin-2-yl)-1H-indol-5-yl)carbamate



The title compound was prepared by following the similar procedure as described in Example- 4 by using Example- 8.

- 10 ^1H NMR (400 MHz, CDCl_3) δ : 1.31 (t, $J = 7.2$ Hz, 3H), 1.95-1.99 (m, 2H), 2.04-2.09 (m, 2H), 2.22 (s, 3H), 3.63-3.69 (m, 2H), 3.80-3.86 (m, 2H), 4.23 (q, $J = 7.2$ Hz, 2H), 4.62 (bs, 1H), 6.23-6.63 (m, 2H), 7.16-7.18 (m, 1H), 7.39 (s, 2H), 7.59 (d, $J = 3.6$ Hz, 1H), 7.74 (bs, 1H), 7.99 (d, $J = 8.8$ Hz, 1H), 8.23 (s, 1H); MS: 463 (M+1).

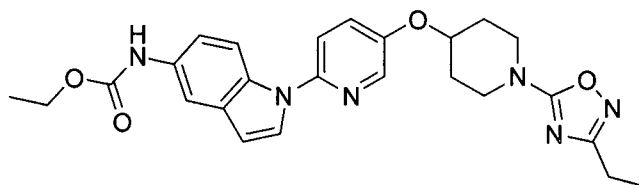
- 15 **Example-141:** Ethyl (1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy) pyridin-2-yl)-1H-indol-5-yl)carbamate



The title compound was prepared by following the similar procedure as described in Example- 4 by using Example-8

- 20 ^1H NMR (400 MHz, CDCl_3) δ : 1.30-1.36 (m, 9H), 1.97-2.03 (m, 2H), 2.06-2.13 (m, 2H), 2.90-2.93 (m, 1H), 3.64-3.70 (m, 2H), 3.84-3.90 (m, 2H), 4.26 (q, $J = 7.2$ Hz, 2H), 4.62-4.64 (m, 1H), 6.62 (bs, 1H), 6.65 (d, $J = 3.6$ Hz, 1H), 7.20 (d, $J = 7.6$ Hz, 1H), 7.39-7.44 (m, 2H), 7.62 (d, $J = 3.6$ Hz, 1H), 7.77 (bs, 1H), 8.02 (d, $J = 8.8$ Hz, 1H), 8.26 (bs, 1H); MS: 491 (M+1).

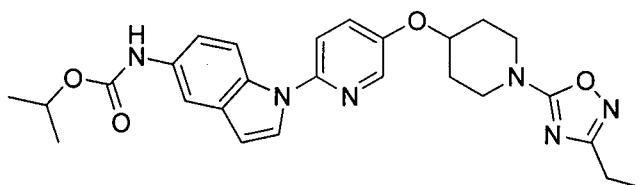
Example-142: Ethyl (1-(5-((1-(3-ethyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate



The title compound was prepared by following the similar procedure as described in Example- 4 by using Example-8.

¹H NMR (400 MHz, CDCl₃) δ; 1.26-1.34 (m, 6H), 1.97-2.00 (m, 2H), 2.05 -2.09 (m, 2H), 2.59 (q, *J* = 7.6 Hz, 2H), 3.64-3.69 (m, 2H), 3.82-3.85 (m, 2H), 4.24 (q, *J* = 7.2 Hz, 2H), 4.61-4.63 (m, 1H), 6.60 (bs, 1H), 6.63 (d, *J* = 3.2 Hz, 1H), 7.18 (d, *J* = 8.8 Hz, 1H), 7.39-7.40 (m, 2H), 7.60 (d, *J* = 3.2 Hz, 1H), 7.75 (bs, 1H), 8.00 (d, *J* = 8.8 Hz, 1H), 8.24-8.25 (m, 1H); MS: 477 (M+1).

Example-143: Isopropyl (1-(5-((1-(3-ethyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy) pyridin-2-yl)-1H-indol-5-yl)carbamate

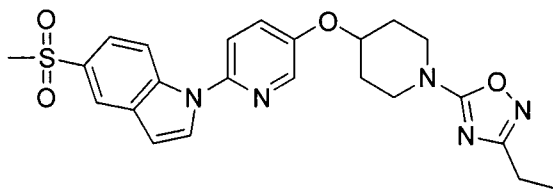


The title compound was prepared by following the similar procedure as described in Example-4 by using Example-131.

¹H NMR (400 MHz, CDCl₃) δ; 1.23-1.31 (m, 9H), 1.95-1.96 (m, 2H), 1.97-2.01 (m, 2H), 2.03-2.10 (m, 2H), 2.30 (q, *J* = 7.6 Hz, 2H), 3.62-3.68 (m, 2H), 3.81-3.87 (m, 2H), 4.60-4.63 (m, 1H), 4.99-5.04 (m, 1H), 6.55 (bs, 1H), 6.62 (d, *J* = 3.2 Hz, 1H), 7.17 (d, *J* = 8.8 Hz, 1H), 7.39-7.39 (m, 2H), 7.59 (d, *J* = 3.6 Hz, 1H), 7.74 (bs, 1H), 7.99 (d, *J* = 8.8 Hz, 1H); MS: 491 (M+1).

Example-144: 3-Ethyl-5-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole

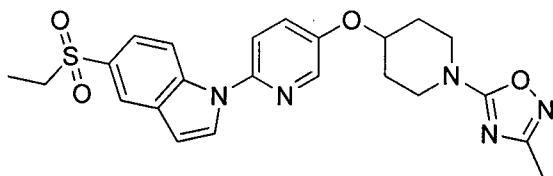
117



The title compound was prepared by following the similar procedure as described in Example-4 using Example-1.

¹H NMR (400 MHz, CDCl₃) δ; 1.32 (t, *J* = 7.6 Hz, 3H), 1.99-2.05 (m, 2H), 2.08-2.16 (m, 2H), 2.61 (q, *J* = 7.6 Hz, 2H), 3.10 (s, 3H), 3.67-3.73 (m, 2H), 3.84-3.91 (m, 2H), 4.68-4.71 (m, 1H), 6.85 (d, *J* = 3.2 Hz, 1H), 7.46-7.46 (m, 2H), 7.74 (d, *J* = 3.6 Hz, 1H), 7.82 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.22 (d, *J* = 8.8 Hz, 1H), 8.31-8.31 (m, 2H); MS: 468 (M+1).

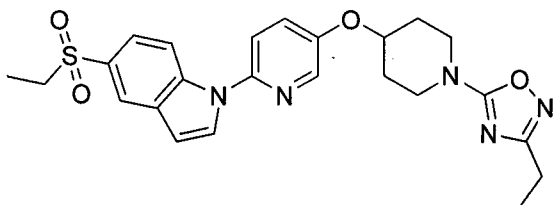
Example-145: 5-(4-(((6-(5-(Ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3-methyl-1,2,4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 by using Example-10.

¹H NMR (400 MHz, CDCl₃) δ; 1.26 (t, *J* = 7.6 Hz, 3H), 1.96-2.02 (m, 2H), 2.06-2.11 (m, 2H), 2.22 (s, 3H), 3.13 (q, *J* = 7.6 Hz, 2H), 3.64-3.70 (m, 2H), 3.81-3.87 (m, 2H), 4.64-4.67 (m, 1H), 6.81 (d, *J* = 3.2 Hz, 1H), 7.40-7.45 (m, 2H), 7.70 (d, *J* = 3.2 Hz, 1H), 7.74 (dd, *J* = 8.4, 1.2 Hz, 1H), 8.18 (d, *J* = 8.8 Hz, 1H), 8.24 (d, *J* = 1.2 Hz, 1H), 8.28 (d, *J* = 1.2 Hz, 1H).

Example-146: 3-Ethyl-5-(4-(((6-(5-(ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole

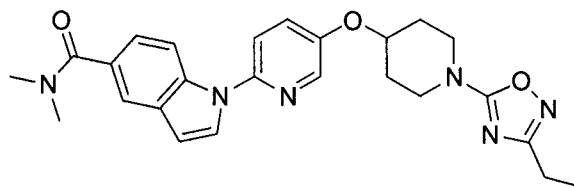


The title compound was prepared by following the similar procedure as described in Example-18 by using Example-10.

¹H NMR (400 MHz, CDCl₃) δ; 1.23-1.29 (m, 6H), 1.99-2.01 (m, 2H), 2.06-2.10 (m, 2H), 2.58 (q, *J* = 7.6 Hz, 2H), 3.14 (q, *J* = 7.2 Hz, 2H), 3.64-3.70 (m, 2H), 3.82-3.88 (m, 2H), 4.66-4.67 (m, 1H), 6.82 (d, *J* = 3.6 Hz, 1H), 7.41-7.46 (m, 2H), 7.70 (d, *J* = 3.6 Hz, 1H), 7.75 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.24 (d, *J* = 1.6 Hz, 1H), 8.29 (m, 1H);

5 MS: 467.1 (M+1).

Example-147: 1-(5-((1-(3-Ethyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide

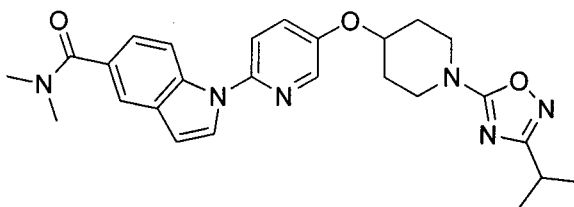


The title compound was prepared by following the similar procedure as described in Example-4 by using Example-39.

¹H NMR (400 MHz, CDCl₃) δ; 1.28 (t, *J* = 7.6 Hz, 3H), 2.00-2.02 (m, 2H), 2.05-2.12 (m, 2H), 2.59 (q, *J* = 7.6 Hz, 2H), 3.09 (bs, 6H), 3.64-3.70 (m, 2H), 3.82-3.89 (m, 2H), 4.63-4.65 (m, 1H), 6.72 (d, *J* = 3.2 Hz, 1H), 7.35 (dd, *J* = 8.4, 1.2 Hz, 1H), 7.42-7.43 (m, 2H), 7.65 (d, *J* = 3.2 Hz, 1H), 7.75 (d, *J* = 1.2 Hz, 1H), 8.06 (d, *J* = 8.8 Hz, 1H), 8.27-8.28 (m, 1H); MS: 461

15 (M+1).

Example-148: 1-(5-((1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)-pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide



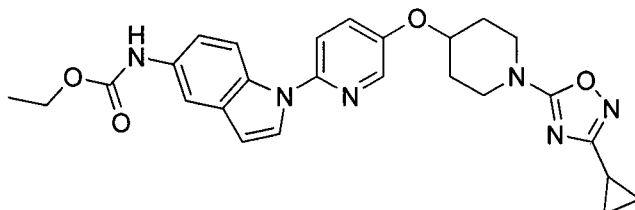
The title compound was prepared by following the similar procedure as described in Example-4 by using Example-39.

¹H NMR (400 MHz, DMSO-d₆) δ; 1.19 (d, *J* = 6.8 Hz, 6H), 1.73-1.80 (m, 2H), 2.06-2.11 (m, 2H), 2.08-2.84 (m, 1H), 2.99 (s, 6H), 3.47-3.54 (m, 2H), 3.79-3.85 (m, 2H), 4.78-4.80 (m,

20

1H), 6.78 (d, $J = 3.2$ Hz, 1H), 7.29 (dd, $J = 8.8, 1.6$ Hz, 1H), 7.70-7.73 (m, 3H), 8.00 (d, $J = 3.6$ Hz, 1H), 8.23 (d, $J = 8.4$ Hz, 1H), 8.36-8.36 (m, 1H); MS: 475 (M+1).

Example-149: Ethyl (1-(5-((1-(3-cyclopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate



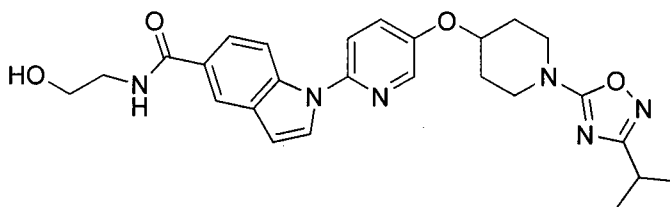
5

The title compound was prepared by following the similar procedure as described in Example- 4 by using Example-8.

^1H NMR (400 MHz, CDCl_3) δ : 0.93-0.97 (m, 4H), 1.32 (t, $J = 7.2$ Hz, 3H), 1.86-1.89 (m, 1H), 1.95-1.97 (m, 2H), 2.02-2.06 (m, 2H), 3.59-3.65 (m, 2H), 3.79-3.84 (m, 2H), 4.24 (q, $J = 7.2$ Hz, 2H), 4.60-4.61 (m, 1H), 6.59 (bs, 1H), 6.63 (d, $J = 3.6$ Hz, 1H), 7.17-7.20 (m, 1H), 7.37-7.42 (m, 2H), 7.60 (d, $J = 3.6$ Hz, 1H), 7.74 (bs, 1H), 8.00 (d, $J = 8.8$ Hz, 1H), 8.24 (m, 1H); MS: 489 (M+1).

10

Example-150: N-(2-Hydroxyethyl)-1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide



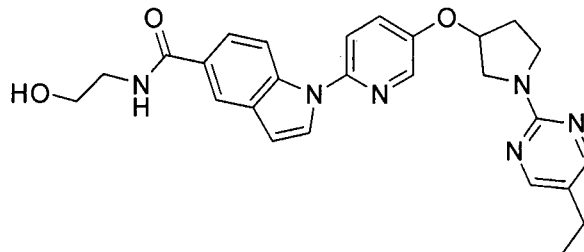
15

The title compound was prepared by following the similar procedure as described in Example-4 by using Example-76.

^1H NMR (400 MHz, CDCl_3) δ : 1.31 (d, $J = 6.8$ Hz, 6H), 1.98-2.04 (m, 2H), 2.07-2.14 (m, 2H), 2.88-2.93 (m, 1H), 3.65-3.71 (m, 4H), 3.84-3.90 (m, 4H), 4.65-4.67 (m, 1H), 6.71-6.73 (m, 1H), 6.77 (d, $J = 3.2$ Hz, 1H), 7.45 (s, 2H), 7.68 (d, $J = 3.6$ Hz, 1H), 7.73 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.08 (d, $J = 8.8$ Hz, 1H), 8.15 (d, $J = 1.6$ Hz, 1H), 8.29-8.30 (m, 1H); MS: 491 (M+1).

20

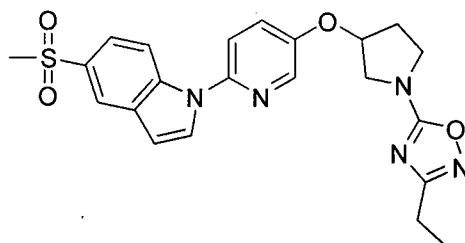
Example-151: ($\pm$)-1-(5-((1-(5-Ethylpyrimidin-2-yl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-2 using ($\pm$)-*tert*-butyl 3-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidine-1-carboxylate (intermediate-33).

^1H NMR (400 MHz, CDCl_3) δ : 1.20 (t, $J = 7.6$ Hz, 3H), 2.32-2.38 (m, 2H), 2.49 (q, $J = 7.6$ Hz, 2H), 2.96 (bs, 1H), 3.66-3.70 (m, 2H), 3.74-3.81 (m, 1H), 3.86-3.99 (m, 5H), 5.13-5.14 (m, 1H), 6.70-6.75 (m, 2H), 7.38-7.43 (m, 2H), 7.66 (d, $J = 3.2$ Hz, 1H), 7.72 (dd, $J = 8.4$, 1.6 Hz, 1H), 8.14 (d, $J = 1.2$ Hz, 1H), 8.22-8.26 (m, 3H); MS: 473.1 (M+1).

Example-152: ($\pm$)-3-Ethyl-5-(3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)-1,2,4-oxadiazole



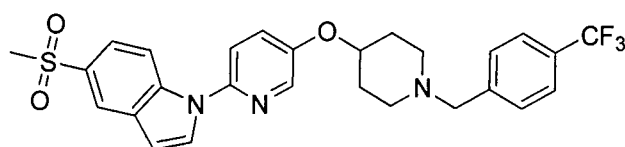
The title compound was prepared by following the similar procedure as described in Example-4 by using Example-24.

^1H NMR (400 MHz, CDCl_3) δ : 1.30 (t, $J = 7.6$ Hz, 3H), 2.34-2.38 (m, 1H), 2.45-2.46 (m, 1H), 2.62 (q, $J = 7.6$ Hz, 2H), 3.11 (s, 3H), 3.82-3.90 (m, 2H), 3.93-3.94 (m, 2H), 5.15-5.17 (m, 1H), 6.85-6.86 (m, 1H), 7.41-7.47 (m, 2H), 7.74 (d, $J = 3.6$ Hz, 1H), 7.82 (dd, $J = 8.8$, 1.6 Hz, 1H), 8.22 (d, $J = 8.8$ Hz, 1H), 8.28 (dd, $J = 2.8$, 0.8 Hz, 1H), 8.31 (d, $J = 1.6$ Hz, 1H); MS: 454.23 (M+1).

(±)-3-ethyl-5-(3-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)-1,2,4-oxadiazole was purified into its enantiomers via preparatory HPLC utilizing a CHIRAL CEL OJ-H 250 X 30 mm, with mobile phase (MeOH: 85% CH₃CN: 15 %) at a Flow rate of 50mL/min wavelength for monitoring the separation was 210nm.

5 Isomer 1 RT = 8.85 min. and isomer 2 RT = 9.96 min.

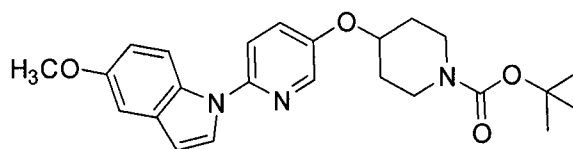
Example-153: 5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)benzyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example- 82 by using Example-1 and 4-(trifluoromethyl)benzaldehyde.

¹H NMR (400 MHz, CDCl₃) δ; 1.93-1.94 (m, 2H), 2.03-2.08 (m, 2H), 2.33-2.38 (m, 2H), 2.76 (bs, 2H), 3.08 (s, 3H), 3.60 (s, 2H), 4.41-4.44 (m, 1H), 6.82 (d, *J* = 3.6 Hz, 1H), 7.38-7.48 (m, 4H), 7.58 (d, *J* = 8.0 Hz, 2H), 7.71 (d, *J* = 3.2 Hz, 1H), 7.79 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.16-8.19 (m, 1H), 8.26-8.29 (m, 2H); MS: 529 (M+1).

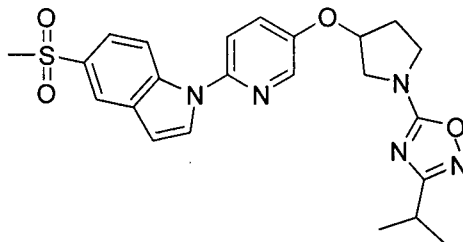
15 **Example-154:** *tert*-Butyl-4-(((6-(5-methoxy-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-06) and 5-methoxy-1H-indole (0.085g, 20 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.49 (s, 9H), 1.79-1.84 (m, 2H), 1.96-2.02 (m, 2H), 3.35-3.41 (m, 2H), 3.71-3.78 (m, 2H), 3.89 (s, 3H), 4.51-4.53 (m, 1H), 6.63 (d, *J* = 3.2Hz, 1H), 6.93 (dd, *J* = 8.8, 2.4 Hz, 1H), 7.13 (d *J* = 2.4 Hz, 1H), 7.37-7.42 (m, 2H), 7.60-7.6 (d, *J* = 3.2 Hz, 1H), 7.99 (d, *J* = 9.2 Hz, 1H), 8.24-8.25 (m, 1H); MS: 424 (M+1).

Example-155: (±)-3-Isopropyl-5-(3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)-1,2,4-oxadiazole



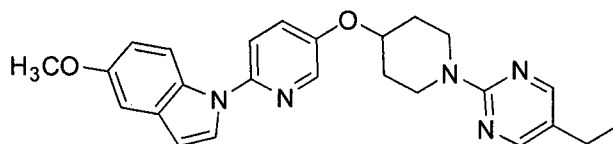
The title compound was prepared by following the similar procedure as described in Example-4 by using Example-24.

¹H NMR (400 MHz, CDCl₃) δ; 1.31 (d, *J* = 6.8 Hz, 6H), 2.34-2.38 (m, 1H), 2.44-2.45 (m, 1H), 2.90-2.97 (m, 1H), 3.11 (s, 3H), 3.81-3.90 (m, 2H), 3.91-3.94 (m, 2H), 5.15-5.16 (m, 1H), 6.85 (d, *J* = 3.6 Hz, 1H), 7.41-7.47 (m, 2H), 7.74 (d, *J* = 3.2 Hz, 1H), 7.83 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.22 (d, *J* = 8.8 Hz, 1H), 8.28 (d, *J* = 2.0 Hz, 1H), 8.31 (d, *J* = 1.6 Hz, 1H); MS:

468.1 (M+1).

Example-155 was purified into its enantiomers via preparatory HPLC utilizing a CHIRAL IA 250 x 30 mm, with mobile phase (MeOH: 90% CH₃CN: 10 %) at a Flow rate of 60mL/min. wavelength for monitoring the separation was 210nm. isomer 1 RT = 8.99 min. and isomer 2 RT = 11.20 min.

Example-156: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-methoxy-1H-indole

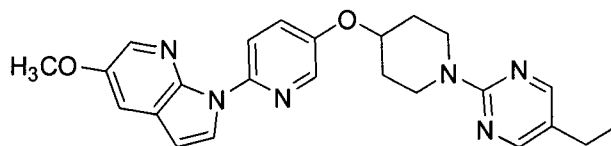


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-154 (0.031g, 20%).

¹H NMR (400 MHz, CDCl₃) δ; 1.21 (t, *J* = 7.6 Hz, 3H), 1.85-1.92 (m, 2H), 2.06-2.12 (m, 2H), 2.50 (q, *J* = 7.6 Hz, 2H), 3.64-3.71 (m, 2H), 3.89 (s, 3H), 4.21-4.27 (m, 2H), 4.60-4.62 (m, 1H), 6.63 (d, *J* = 3.2 Hz, 1H), 6.93 (dd, *J* = 2.4, 9.2 Hz, 1H), 7.13 (d, *J* = 2.4 Hz, 1H),

7.42 (bs, 2H), 7.61 (d, $J = 3.2$ Hz, 1H), 8.0 (d, $J = 8.8$ Hz, 1H), 8.21 (bs, 2H), 8.28 (d, $J = 2.0$ Hz, 1H); MS: 430 (M+1).

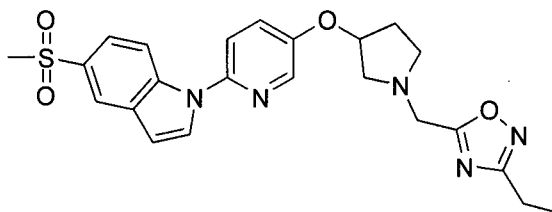
Example-157: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-methoxy-1H-pyrrolo[2,3-b]pyridine



The title compound was prepared by following the similar procedure as described in Example- 2 using *tert*-Butyl-4-(((6-(5-methoxy-1H-pyrrolo[2,3-b]pyridin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate (intermediate-76) (0.031g, 20%).

^1H NMR (400 MHz, CDCl_3) δ : 1.21 (t, $J = 7.6$ Hz, 3H), 1.86-1.92 (m, 2H), 2.05-2.11 (m, 2H), 2.50 (q, $J = 7.6$ Hz, 2H), 3.71 (bs, 2H), 3.92 (s, 3H), 4.18-4.25 (m, 2H), 4.57 – 4.60 (m, 1H), 6.57 (d, $J = 4.0$ Hz, 1H), 7.45 (d, $J = 2.8$ Hz, 1H), 7.47 (d, $J = 2.8$ Hz, 1H), 8.15 (d, $J = 2.8$ Hz, 1H), 8.20 (d, $J = 3.2$ Hz, 1H), 8.22 (d, $J = 3.2$ Hz, 3H), 8.69 (d, $J = 8.8$ Hz, 1H); MS: 431(M+1).

Example-158: ($\pm$)-3-Ethyl-5-((3-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)methyl)-1,2,4-oxadiazole

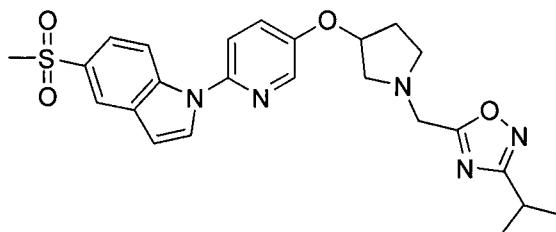


The title compound was prepared according to procedure described in Example-79 by using Example-24.

^1H NMR (400 MHz, CDCl_3) δ : 1.37 (t, $J = 7.6$ Hz, 3H), 2.12-2.15 (m, 1H), 2.39-2.48 (m, 1H), 2.80 (q, $J = 7.6$ Hz, 2H), 2.84 (bs, 1H), 3.02-3.08 (m, 2H), 3.10 (s, 3H), 3.24-3.26 (m, 1H), 3.28 (s, 2H), 4.97 (m, 1H), 6.84 (d, $J = 3.6$ Hz, 1H), 7.37-7.44 (m, 2H), 7.73 (d, $J = 3.6$ Hz, 1H), 7.80-7.82 (m, 1H), 8.19-8.23 (m, 2H), 8.31 (s, 1H); MS: 468.1 (M+1).

Example-159: ($\pm$)-3-Isopropyl-5-((3-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)methyl)-1,2,4-oxadiazole

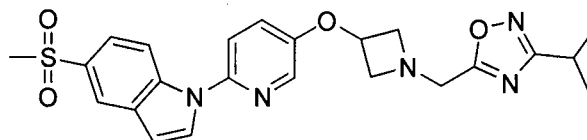
124



The title compound was prepared according to procedure described in Example-79 by using Example-24.

¹H NMR (400 MHz, CDCl₃) δ; 1.36 (d, *J* = 6.8 Hz, 6H), 2.11-2.15 (m, 1H), 2.41-2.46 (m, 1H), 2.83-2.87 (m, 1H), 3.02-3.07 (m, 2H), 3.10-3.16 (m, 4H), 3.21-3.25 (m, 1H), 4.04 (s, 2H), 4.95-4.99 (m, 1H), 6.83-6.84 (m, 1H), 7.37-7.43 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.20 (d, *J* = 8.8 Hz, 1H), 8.23 (d, *J* = 2.4 Hz, 1H), 8.31 (d, *J* = 1.6 Hz, 1H); MS: 481.9 (M+1).

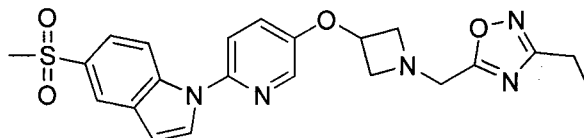
Example-160: 3-Isopropyl-5-((3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)azetidin-1-yl)methyl)-1,2,4-oxadiazole



The title compound was prepared according to procedure described in Example-79 by using Example-27.

¹H NMR (400 MHz, CDCl₃) δ; 1.36 (d, *J* = 6.8 Hz, 6H), 3.10 (s, 3H), 3.11-3.16 (m, 1H), 3.45-3.52 (m, 2H), 3.99 (s, 2H), 4.07-4.10 (m, 2H), 4.93-4.99 (m, 1H), 6.84-6.85 (m, 1H), 7.32 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.16(d, *J* = 2.8 Hz, 1H), 8.11 (d, *J* = 8.8 Hz, 1H), 8.12 (d, *J* = 8.8 Hz, 1H), 8.31 (d, *J* = 1.6 Hz, 1H); MS: 467.48 (M+1).

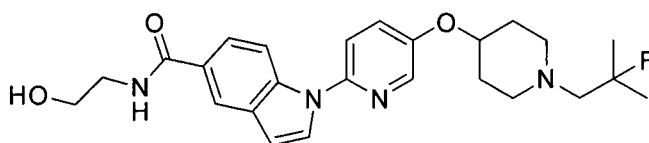
Example-161: 3-Ethyl-5-((3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)azetidin-1-yl)methyl)-1,2,4-oxadiazole



The title compound was prepared according to procedure described in Example-79 by using Example-27.

¹H NMR (400 MHz, CDCl₃) δ; 1.35 (t, *J* = 7.6 Hz, 3H), 2.79 (q, *J* = 7.6 Hz, 2H), 3.10 (s, 3H), 3.45-3.49 (m, 2H), 3.99 (s, 2H), 4.07-4.10 (m, 2H), 4.95-4.98 (m, 1H), 6.84 (d, *J* = 3.2 Hz, 1H), 7.32 (dd, *J* = 8.8, 3.2 Hz, 1H), 7.43 (d, *J* = 8.8 Hz, 1H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.16 (d, *J* = 2.8 Hz, 1H), 8.20 (d, *J* = 8.8 Hz, 1H), 8.31 (d, *J* = 1.6 Hz, 1H); MS: 454.23 (M+1).

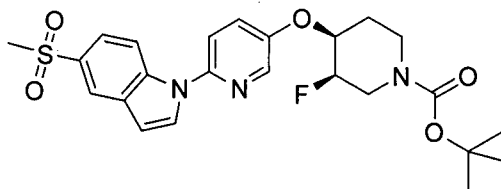
Example-162: 1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide



The title compound was prepared by following the similar procedure as described in Example-1 using N-(2-hydroxyethyl)-1H-indole-5-carboxamide (intermediate-19) and 2-Chloro-5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridine (intermediate-54).

¹H NMR (400 MHz, CDCl₃) δ; 1.40 (d, *J* = 21.2 Hz, 6H), 1.90 (bs, 2H), 2.05 (bs, 2H), 2.47-2.53 (m, 3H), 2.90-2.97 (m, 3H), 3.66-3.70 (m, 2H), 3.87-3.88 (m, 2H), 4.38 (bs, 1H), 6.71-6.72 (m, 1H), 6.75 (d, *J* = 3.2 Hz, 1H), 7.41-4.41 (m, 2H), 7.67 (d, *J* = 3.2 Hz, 1H), 7.72 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.05 (d, *J* = 8.4 Hz, 1H), 8.14 (d, *J* = 1.6 Hz, 1H), 8.26-8.27 (m, 1H); MS: 454.5 (M+1).

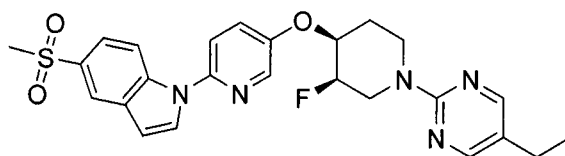
Example-163: *cis* (±)-tert-Butyl-3-fluoro-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate 21) and *cis*(±)-tert-butyl-4-((6-chloropyridin-3-yl)oxy)-3-fluoropiperidine-1-carboxylate (intermediate 7).

¹H NMR (400 MHz, CDCl₃) δ; 1.49 (s, 9H), 1.92 (bs, 1H), 2.11-2.17 (m, 1H), 3.09 (s, 3H), 3.41-3.50 (m, 2H), 3.73 (bs, 3H), 3.96-3.99 (m, 1H), 6.83 (d, *J* = 3.6 Hz, 1H), 7.43 (d, *J* = 8.8 Hz, 1H), 7.51 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.73 (d, *J* = 3.2 Hz, 1H), 7.80 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.30 (d, *J* = 1.2 Hz, 1H), 8.34 (d, *J* = 2.8 Hz, 1H); MS: 490.2 (M+1).

Example-164: *cis* (±) (1-(5-(-1-(5-Ethylpyrimidin-2-yl)-3-fluoropiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole.

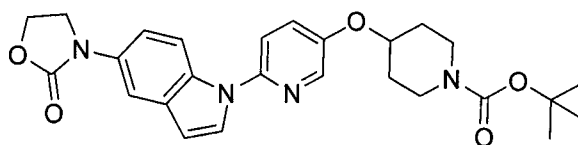


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-163 (0.71 g, 46%);

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.97-2.01 (m, 1H), 2.18-2.23 (m, 1H), 2.49 (q, *J* = 7.6 Hz, 2H), 3.09 (s, 3H), 3.82-3.85 (m, 1H), 4.03-4.14 (m, 2H), 4.36-4.41 (m, 1H), 4.69-4.75 (m, 1H), 4.83-4.84 (m, 0.5H), 4.94-4.96 (m, 0.5H), 6.83 (d, *J* = 3.6 Hz, 1H), 7.44 (d, *J* = 8.8 Hz, 1H), 7.55 (dd, *J* = 8.8, 3.2 Hz, 1H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.21 (s, 2H), 8.23 (s, 1H), 8.30 (d, *J* = 1.6 Hz, 1H), 8.37 (s, 1H); MS: 496.2 (M+1).

Cis(±)(1-(5-(-1-(5-ethylpyrimidin-2-yl)-3-fluoropiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole was purified into its enantiomers via preparatory HPLC utilizing a Cellulose-1 250mmX21mm, Column No- CRL-023 with mobile phase (MeOH:85% CH₃CN 15 %) at a Flow rate of 21mL/min wavelength for monitoring the separation was 210nm. isomer 1 RT = 8.75 min. and isomer 2 RT = 9.89 min.

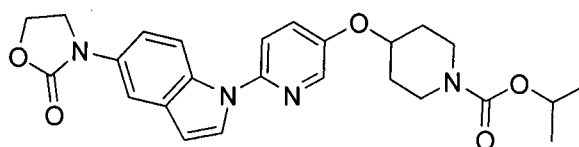
Example-165: *tert*-Butyl-4-(((6-(5-(2-oxooxazolidin-3-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-06) and 3-(1H-indol-5-yl)oxazolidin-2-one (intermediate-59) (0.390g, 63%).

¹H NMR (400 MHz, CDCl₃) δ; 1.49 (s, 9H), 1.83 (bs, 2H), 1.99 (bs, 2H), 3.35-3.41 (m, 2H), 3.74-3.78 (m, 2H), 4.13-4.18 (m, 2H), 4.50-4.54 (m, 3H), 6.68-6.71 (m, 1H), 7.42 (bs, 2H), 7.52 (d, *J* = 8.8 Hz, 1H), 7.65 (d, *J* = 3.2 Hz, 1H), 7.73 (bs, 1H), 8.07 (d, *J* = 9.2 Hz, 1H), 8.26 (bs, 1H); MS: 423 (M-56).

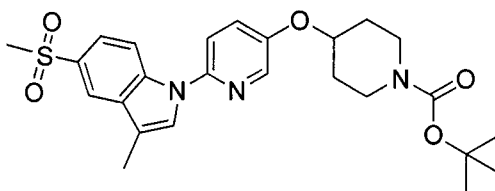
Example-166: Isopropyl 4-((6-(5-(2-oxooxazolidin-3-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-165 (0.011g, 08%).

¹H NMR (400 MHz, CDCl₃) δ; 1.28 (d, *J* = 3.6 Hz, 6H), 1.84-1.86 (m, 2H), 2.00-2.02 (m, 2H), 3.41-3.47 (m, 2H), 3.77-3.81 (m, 2H), 4.14-4.18 (m, 2H), 4.51-4.57 (m, 3H), 4.94-4.97 (m, 1H), 6.68 (d, *J* = 3.6 Hz, 1H), 7.42 (bs, 2H), 7.52-7.55 (m, 1H), 7.66 (d, *J* = 3.6 Hz, 1H), 7.73 (d, *J* = 2.0 Hz, 1H), 8.08 (d, *J* = 8.8 Hz, 1H), 8.26 (bs, 1H); MS: 465 (M+1).

Example-167: *tert*-Butyl- 4-((6-(3-methyl-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

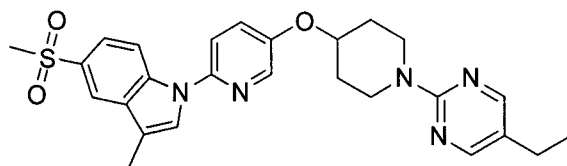


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 3-methyl-5-(methylsulfonyl)-1H-indole (intermediate-23).

¹H NMR (400 MHz, CDCl₃) δ; 1.47 (s, 9H), 1.77-1.85 (m, 2H), 1.96-2.01 (m, 2H), 2.41 (s, 3H), 3.09 (s, 3H), 3.34-3.40 (m, 2H), 3.71-3.77 (m, 2H), 4.51-4.55 (m, 1H), 7.35-7.43 (m,

2H), 7.50 (d, $J = 0.8$ Hz, 1H), 7.79 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.18-8.25 (m, 3H); MS: 508.2 (M+23).

Example-168: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-3-methyl-5-(methylsulfonyl)-1H-indole



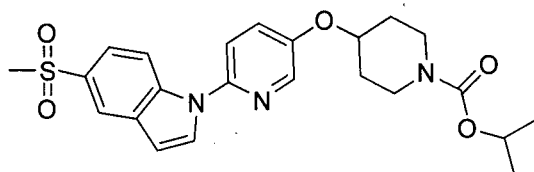
5

The title compound was prepared by following the similar procedure as described in Example-2 by using Example-167.

^1H NMR (400 MHz, CDCl_3) δ : 1.20 (t, $J = 7.6$ Hz, 3H), 1.85-1.91 (m, 2H), 2.06-2.11 (m, 2H), 2.41 (s, 3H), 2.48 (q, $J = 7.6$ Hz, 2H), 3.10 (s, 3H), 3.63-3.70 (m, 2H), 4.19-4.25 (m, 2H), 4.61-4.63 (m, 1H), 7.38 (d, $J = 8.8$ Hz, 1H), 7.44 (dd, $J = 8.8, 2.8$ Hz, 1H), 7.51 (d, $J = 0.8$ Hz, 1H), 7.79 (dd, $J = 8.8, 2.0$ Hz, 1H), 8.20 (d, $J = 8.0$ Hz, 1H), 8.23 (d, $J = 1.6$ Hz, 1H), 8.28 (s, 1H); MS: 492.2 (M+1).

10

Example-169: Isopropyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



15

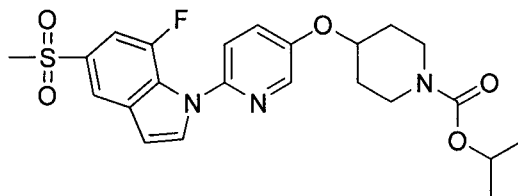
The title compound was prepared by following the similar procedure as described in Example-70 by using Example-1 (0.011 g, 9%).

^1H NMR (400 MHz, CDCl_3) δ : 1.26 (d, $J = 6.0$ Hz, 6H), 1.80-1.84 (m, 2H), 1.98-2.02 (m, 2H), 3.09 (s, 3H), 3.40-3.48 (m, 2H), 3.74-3.80 (m, 2H), 4.54-4.60 (m, 1H), 4.91-4.97 (m, 1H), 6.68 (d, $J = 3.2$ Hz, 1H), 7.43 (dd, $J = 8.8, 2.4$ Hz, 2H), 7.72 (d, $J = 3.6$ Hz, 1H), 7.80 (dd, $J = 8.8, 1.6$ Hz, 1H), 8.19 (d, $J = 8.8$ Hz, 1H), 8.28 (dd, $J = 3.6, 2.8$ Hz, 2H); MS: 458 (M+1).

20

Example-170: Isopropyl 4-((6-(7-fluoro-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

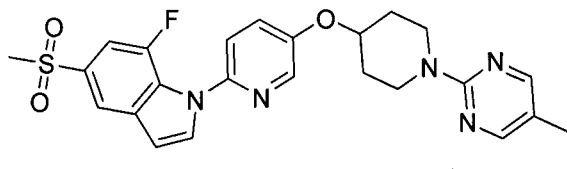
129



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-91.

¹H NMR (400MHz, CDCl₃) δ; 1.28 (d, *J* = 6.4 Hz, 6H), 1.82-1.88 (m, 2H), 2.00-2.03 (m, 2H), 3.11 (s, 3H), 3.42-3.50 (m, 2H), 3.75-3.81 (m, 2H), 4.58-4.62 (m, 1H), 4.92-4.98 (m, 1H), 6.86-6.88 (m, 1H), 7.39-7.41 (m, 2H), 7.51 (dd, *J* = 11.6, 1.6 Hz, 1H), 7.68 (d, *J* = 3.2 Hz, 1H), 8.12 (d, *J* = 1.6 Hz, 1H), 8.25 (s, 1H); MS: 476.1 (M+1).

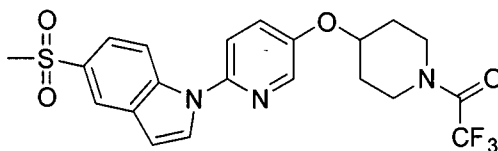
Example-171: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-7-fluoro -5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example- 2 by using Example-91 (0.011g, 22 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.22 (t, *J* = 7.6 Hz, 3H), 1.93 (bs, 2H), 2.10-2.14 (m, 2H), 2.51 (q, *J* = 8.0 Hz, 2H), 3.11 (s , 3H), 3.74 (bs , 2H), 4.22-4.25 (m, 2H), 4.68 (bs, 1H), 6.87 (d, *J* = 3.2 Hz, 1H), 7.39-7.45 (m, 2H), 7.52 (dd, *J* = 11.6, 1.2 Hz, 1H), 7.69 (d, *J* = 3.6 Hz, 1H), 8.13 (d, *J* =1.2 Hz, 1H), 8.23 (bs, 2H), 8.27 (d, *J* = 2.8 Hz, 1H); MS: 496 (M+1).

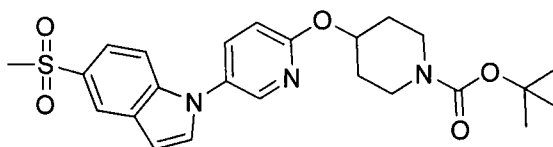
Example-172: 2,2,2-Trifluoro-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone



The title compound was prepared by following the similar procedure as described in Example-129 by using Example-1.

¹H NMR (400 MHz, CDCl₃) δ; 2.01-2.11 (m, 4H), 3.11 (s, 3H), 3.70-3.79 (m, 2H), 3.81-3.93 (m, 1H), 3.94-3.99 (m, 1H), 4.72-4.77 (m, 1H), 6.86 (dd, *J* = 3.2, 0.4 Hz, 1H), 7.46-7.47 (m, 2H), 7.74 (d, *J* = 3.6 Hz, 1H), 7.83 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.23 (d, *J* = 8.8 Hz, 1H), 8.32 (d, *J* = 1.6 Hz, 2H); MS: 467 (M⁺)

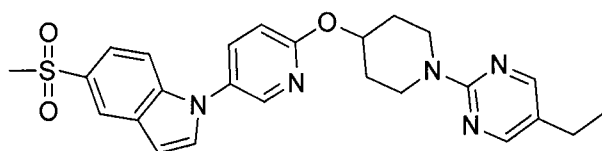
- 5 **Example-173:** *tert*-Butyl-4-((5-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-2-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate 21) and *tert*-butyl-4-((5-bromopyridin-2-yl)oxy)piperidine-1-carboxylate (intermediate 65) (0.610g, 46%).

10 ¹H NMR (400 MHz, CDCl₃) δ; 1.51 (s, 9H), 1.78-1.85 (m, 2H), 1.98-2.07 (m, 2H), 3.12 (s, 3H), 3.27-3.38 (m, 2H), 3.71-3.84 (m, 2H), 5.29-5.33 (m, 1H), 6.87 (d, *J* = 3.2 Hz, 1H), 6.93 (d, *J* = 8.4 Hz, 1H), 7.41 (d, *J* = 3.2 Hz, 1H), 7.50 (d, *J* = 8.8 Hz, 1H), 7.70 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.78 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.29 (d, *J* = 2.4 Hz, 1H), 8.36 (d, *J* = 1.6 Hz, 1H);
15 MS: 416 (M-56).

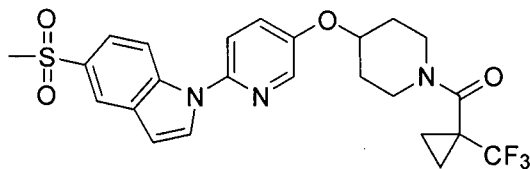
- Example-174:** 1-(6-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-3-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-173 (0.011g, 21%).

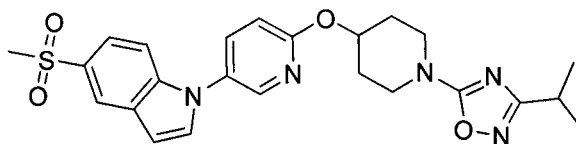
20 ¹H NMR (400 MHz, CDCl₃) δ; 1.19 (d, *J* = 7.6 Hz, 3H), 1.82-1.89 (m, 2H), 2.11-2.17 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.09 (s, 3H), 3.58-3.64 (m, 2H), 4.27-4.33 (m, 2H), 5.37-5.38 (m, 1H), 6.84 (d, *J* = 3.2 Hz, 1H), 6.91 (d, *J* = 8.8 Hz, 1H), 7.39 (d, *J* = 3.2 Hz, 1H), 7.45 (d, *J* = 8.4 Hz, 1H), 7.68 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.76 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.19 (s, 2H),
25 8.28 (d, *J* = 2.8 Hz, 1H), 8.34 (s, 1H); MS: 478 (M+1).

Example-175: (4-(((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl) (1-(trifluoromethyl)cyclopropyl)methanone



The title compound was prepared by following the similar procedure as described in Example-23 by using Example-1 and 1-(trifluoromethyl)cyclopropanecarboxylic acid
¹HNMR (400MHz, CDCl₃) δ: 1.20-1.28 (m, 2H), 1.36-1.39 (m, 2H), 1.93-2.05 (m, 4H), 3.11 (s, 3H), 3.80-3.81 (m, 4H), 4.68-4.71 (m, 1H), 6.85 (d, *J* = 3.6 Hz, 1H), 7.46 (d, *J* = 2.4 Hz, 2H), 7.74 (d, *J* = 3.6 Hz, 1H), 7.82 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.30-8.32 (m, 2H); MS: 507.5 (M+1).

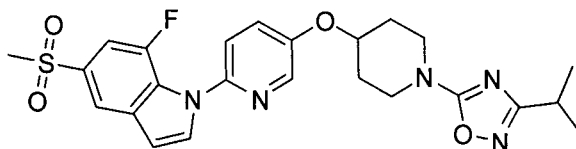
Example-176: 3-Isopropyl-5-(4-(((5-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-2-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 by using Example-173 (0.017g, 9%).

¹H NMR (400 MHz, CDCl₃) δ; 1.29 (d, *J* = 6.8 Hz, 6H), 2.10-2.16 (m, 2H), 2.86-2.93 (m, 2H), 3.08 (s, 3H), 3.58-3.64 (m, 2H), 3.87-3.94 (m, 2H), 4.66 (bs, 1H), 5.37-5.39 (m, 1H), 6.84 (d, *J* = 0.8 Hz, 1H), 6.92 (dd, *J* = 8.8, 0.4 Hz, 1H), 7.38 (d, *J* = 3.6 Hz, 1H), 7.48 (d, *J* = 8.8 Hz, 1H), 7.69 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.75 (dd, *J* = 8.0, 2.8 Hz, 1H), 8.27 (d, *J* = 2.0 Hz, 1H), 8.33 (s, 1H); MS: 482 (M+1).

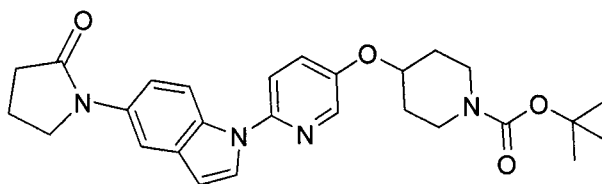
Example-177: 5-(4-(((6-(7-Fluoro-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3-isopropyl-1,2,4-oxadiazole



The title compound was prepared by following the similar procedure as described in Example-4 by using Example- 90 (0.018g, 11%).

¹H NMR (400 MHz, CDCl₃) δ; 1.28 (d, *J* = 7.2 Hz, 6H), 1.96-2.02 (m, 2H), 2.05-2.12 (m, 2H), 2.87-2.90 (m, 1H), 3.08 (s, 3H), 3.63-3.69 (m, 2H), 3.81-3.88 (m, 2H), 4.66-4.67 (m, 1H), 6.84 (dd, *J* = 3.2, 2.4 Hz, 1H), 7.39 (bs, 2H), 7.49 (dd, *J* = 11.6, 1.6 Hz, 1H), 7.66 (d, *J* = 3.6 Hz, 1H), 8.09 (bs, 1H), 8.23 (d, *J* = 1.2 Hz, 1H); MS: 500 (M+1).

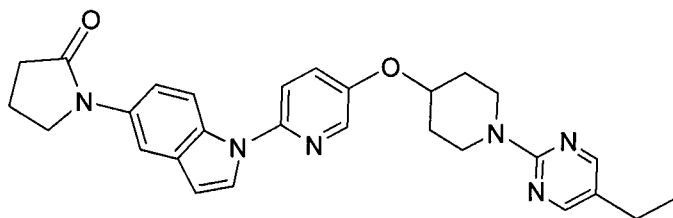
Example-178: *tert*-Butyl-4-(((6-(5-(2-oxopyrrolidin-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-(((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and *tert*-butyl 5-(2-oxopyrrolidin-1-yl)-1H-indole-1-carboxylate (intermediate-27) (0.011 g, 6 %).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.78-1.83 (m, 2H), 1.95-2.00 (m, 2H), 2.17-2.23 (m, 2H), 2.64 (t, *J* = 7.6 Hz, 2H), 3.34-3.40 (m, 2H), 3.71-3.76 (m, 2H), 3.94 (t, *J* = 6.8 Hz, 2H), 4.51-4.53 (m, 1H), 6.67 (d, *J* = 2.8 Hz, 1H), 7.40 (dd, *J* = 2.8, 0.8 Hz, 2H), 7.52 (dd, *J* = 9.2, 2.4 Hz, 1H), 7.63 (d, *J* = 3.2 Hz, 1H), 7.77 (d, *J* = 2.0 Hz, 1H), 8.03 (d, *J* = 8.8 Hz, 1H), 8.24 (d, *J* = 1.6 Hz, 1H); MS: 477 (M+1).

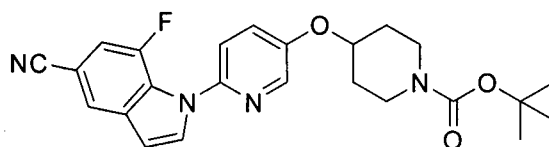
Example-179: 1-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)pyrrolidin-2-one



The title compound was prepared by following the similar procedure as described in Example- 2 by using Example-178 (0.022g, 29%).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.85-1.89 (m, 2H), 2.06-2.08 (m, 2H), 2.17-2.21 (m, 2H), 2.44-2.51 (m, 2H), 2.64 (t, *J* = 8.0 Hz, 2H), 3.63-3.69 (m, 2H), 3.94 (t, *J* = 6.8 Hz, 2H), 4.20-4.22 (m, 2H), 4.60 (bs, 1H), 6.66 (d, *J* = 3.6 Hz, 1H), 7.42 (d, *J* = 2.0 Hz, 2H), 7.52 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.64 (d, *J* = 3.6 Hz, 1H), 7.77 (d, *J* = 2.0 Hz, 1H), 8.04 (d, *J* = 9.2 Hz, 1H), 8.19 (bs, 2H), 8.26 (d, *J* = 2.0 Hz, 1H); MS: 483(M+1).

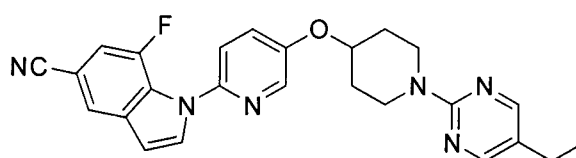
Example-180: *tert*-Butyl-4-((6-(5-cyano-7-fluoro-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 7-fluoro-1H-indole-5-carbonitrile (0.085g, 44%) ,

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.78-1.81 (m, 2H), 1.97-2.05 (m, 2H), 3.35-3.42 (m, 2H), 3.71-3.77 (m, 2H), 4.54-4.58 (m, 1H), 6.78-6.80 (m, 1H), 7.17-7.20 (m, 1H), 7.36-7.38 (m, 2H), 7.64 (d, *J* = 3.2 Hz, 1H), 7.82 (d, *J* = 1.2 Hz, 1H), 8.22 (bs, 1H); MS: 459 (M+23).

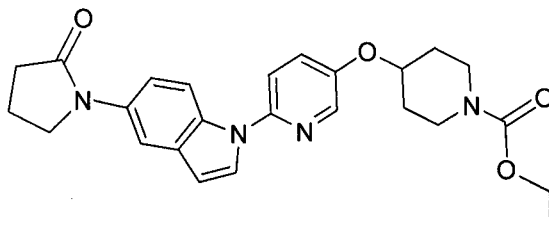
Example-181: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-7-fluoro-1H-indole-5-carbonitrile



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-180 (0.022g, 29%).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.85-1.89 (m, 2H), 2.06-2.09 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.64-3.71 (m, 2H), 4.18-4.23 (m, 2H), 4.63-4.64 (m, 1H), 6.78 (dd, *J* = 3.2, 2.4 Hz, 1H), 7.19 (dd, *J* = 11.6, 1.2 Hz, 1H), 7.35-7.42 (m, 2H), 7.64 (d, *J* = 3.2 Hz, 1H), 7.82 (d, *J* = 1.6 Hz, 1H), 8.19 (s, 2H), 8.24 (bs, 1H); MS: 443 (M+1).

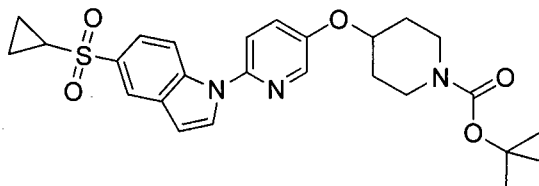
Example-182: Ethyl 4-((6-(5-(2-oxopyrrolidin-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-181 (0.031 g, 27%).

¹H NMR (400 MHz, CDCl₃) δ; 1.27 (t, *J* = 7.2 Hz, 3H), 1.81-1.84 (m, 2H), 1.95-1.98 (m, 2H), 2.16-2.20 (m, 2H), 2.63 (t, *J* = 8.0 Hz, 2H), 3.41-3.46 (m, 2H), 3.74-3.76 (m, 2H), 3.93 (t, *J* = 7.2 Hz, 2H), 4.15 (q, *J* = 7.2 Hz, 2H), 4.52-4.54 (m, 1H), 6.66 (d, *J* = 3.2 Hz, 1H), 7.36-7.42 (m, 2H), 7.51 (dd, *J* = 9.2, 2.4 Hz, 1H), 7.62 (d, *J* = 3.6 Hz, 1H), 7.76 (d, *J* = 2.0 Hz, 1H), 8.02 (d, *J* = 8.8 Hz, 1H), 8.23 (d, *J* = 2.8 Hz, 1H); MS: 449 (M+1).

Example-183: *tert*-Butyl 4-((6-(5-(cyclopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

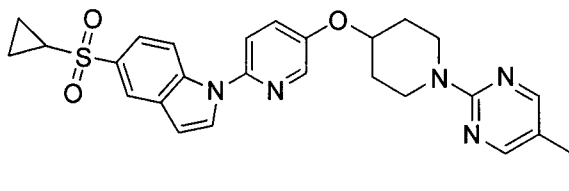


The title compound was prepared by following the similar procedure as described in Example-1 by using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate-6) and 5-(Cyclopropylsulfonyl)-1H-indole (intermediate 24).

¹H NMR (400 MHz, CDCl₃) δ; 0.98-1.01 (m, 2H), 1.36-1.37 (m, 2H), 1.48 (s, 9H), 1.80-1.84 (m, 2H), 1.97-2.04 (m, 2H), 2.48-2.52 (m, 1H), 3.35-3.41 (m, 2H), 3.71-3.74 (m, 2H), 4.55-4.57 (m, 1H), 6.82 (dd, *J* = 3.6, 0.4 Hz, 1H), 7.42-7.43 (m, 2H), 7.71 (d, *J* = 3.6 Hz, 1H), 7.76 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.17 (d, *J* = 8.8 Hz, 1H), 8.24 (d, *J* = 1.6 Hz, 1H), 8.27-8.28 (m, 1H); MS: 498.09 (M+1).

Example-184: 5-(Cyclopropylsulfonyl)-1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole

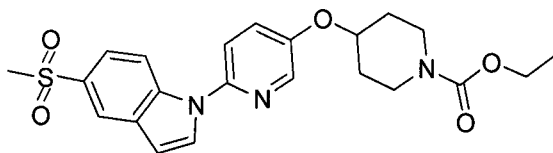
135



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-183.

¹H NMR (400 MHz, CDCl₃) δ; 0.99-1.00 (m, 2H), 1.20 (t, *J* = 7.2 Hz, 3H), 1.37 (bs, 2H), 1.89 (bs, 2H), 2.09 (bs, 2H), 2.47-2.49 (m, 3H), 3.68 (bs, 2H), 4.23 (bs, 2H), 4.64 (bs, 1H), 6.83 (bs, 1H), 7.44 (bs, 2H), 7.72-7.78 (m, 2H), 8.20-8.31 (m, 5H); MS: 504.2 (M+1).

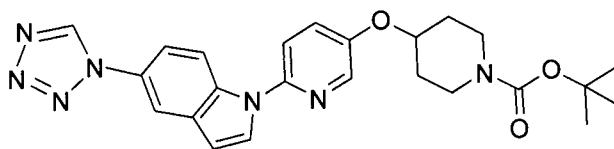
Example-185: Ethyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-1 (0.031g, 22%).

¹H NMR (400 MHz, CDCl₃) δ; 1.27 (t, *J* = 7.2 Hz, 3H), 1.82-1.85 (m, 2H), 1.97-2.01 (m, 2H), 3.08 (s, 3H), 3.41-3.48 (m, 2H), 3.73-3.80 (m, 2H), 4.15 (q, *J* = 6.8 Hz, 2H), 4.56-4.58 (m, 2H), 6.82 (d, *J* = 3.2 Hz, 1H), 7.41 (d, *J* = 2.4 Hz, 1H), 7.71 (d, *J* = 3.2 Hz, 1H), 7.79 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.18 (d, *J* = 8.8 Hz, 1H), 8.27 (bs, 1H), 8.28 (d, *J* = 1.6 Hz, 1H); MS: 444 (M+1).

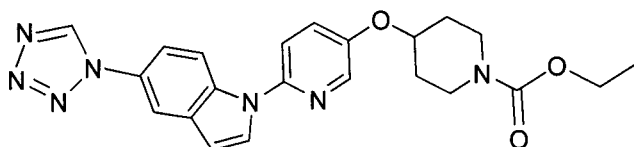
Example-186: *tert*-Butyl 4-((6-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate 06) and 5-(1H-tetrazol-1-yl)-1H-indole (intermediate 57) (0.110 g, 24%).

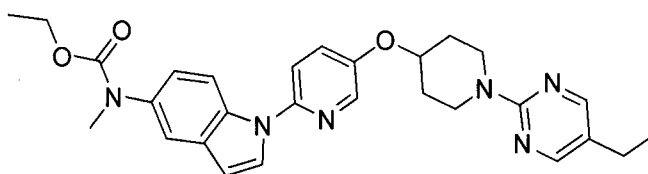
^1H NMR (400 MHz, CDCl_3) δ : 1.49 (s, 9H), 1.80-1.86 (m, 2H), 1.98-2.03 (m, 2H), 3.36-3.49 (m, 2H), 3.71-3.78 (m, 2H), 4.54-4.58 (m, 1H), 6.81 (dd, $J = 3.4, 0.4$ Hz, 1H), 7.44 (bs, 2H), 7.55 (dd, $J = 8.8, 2.4$ Hz, 1H), 7.73 (d, $J = 3.6$ Hz, 1H), 7.95 (d, $J = 2.0$ Hz, 1H), 8.27 (s, 1H), 8.29 (d, $J = 2.0$ Hz, 1H), 9.03 (s, 1H); MS: 462 (M+1).

- 5 **Example-187:** Ethyl-4-((6-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example- 70 by using Example-186 (0.018g, 19%).

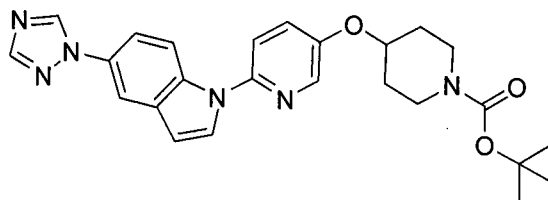
- 10 ^1H NMR (400 MHz, CDCl_3) δ : 1.30 (t, $J = 7.2$ Hz, 3H), 1.82-1.89 (m, 2H), 1.99-2.05 (m, 2H), 3.44-3.50 (m, 2H), 3.76-3.82 (m, 2H), 4.13 (q, $J = 7.2$ Hz, 2H), 4.57-4.62 (m, 1H), 6.82 (dd, $J = 3.6, 0.4$ Hz, 1H), 7.45 (dd, $J = 2.0, 0.8$ Hz, 2H), 7.55 (dd, $J = 9.2, 2.4$ Hz, 1H), 7.74 (d, $J = 3.2$ Hz, 1H), 7.94 (d, $J = 1.6$ Hz, 1H), 8.28 (s, 1H), 8.30 (d, $J = 2.0$ Hz, 1H), 9.03 (s, 1H); MS: 434 (M+1).
- 15 **Example-188:** Ethyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(methyl)carbamate



- To a stirred solution of Example-9 (0.10 g, 0.20mmol) in anhydrous DMF (10 mL), NaH (0.012g, 0.514 mmol) and methyl iodide (0.035g, 0.0246 mmol) were added at 0°C and stirred at 60°C for 4-5h. The reaction was quenched with water. The organic layer was extracted with ethyl acetate. The organic layer was separated, concentrated *in vacuo* and the resultant crude was purified by flash column chromatography to give ethyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(methyl)carbamate (0.020 g, 19 %).
- 20

¹H NMR (400 MHz, CDCl₃) δ; 1.21 (t, *J* = 7.6 Hz, 6H), 1.90-1.93 (m, 2H), 2.05-2.11 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H), 3.34 (s, 3H), 3.63-3.70 (m, 2H), 4.14-4.25 (m, 4H), 4.59-4.62 (m, 1H), 6.66 (d, *J* = 3.6 Hz, 1H), 7.13 (d, *J* = 8.0 Hz, 1H), 7.42 (d, *J* = 1.6 Hz, 2H), 7.48 (bs, 1H), 7.64 (d, *J* = 3.6 Hz, 1H), 8.01 (d, *J* = 8.8 Hz, 1H), 8.20 (bs, 2H), 8.27 (d, *J* = 2.0 Hz, 1H); MS: 501(M+1).

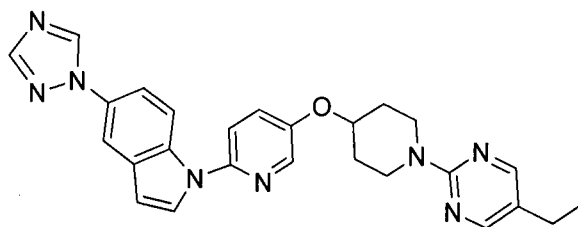
Example-189: *tert*-Butyl 4-((6-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-butyl 4-((6-chloropyridin-3-yl)oxy)piperidine-1-carboxylate (intermediate -6) and 5-(1H-1,2,4-triazol-1-yl)-1H-indole (intermediate 58) (0.440g, 29%).

¹H NMR (400 MHz, CDCl₃) δ; 1.48 (s, 9H), 1.78-1.85 (m, 2H), 1.97-2.02 (m, 2H), 3.34-3.41 (m, 2H), 3.72-3.78 (m, 2H), 4.53-4.56 (m, 1H), 6.76 (d, *J* = 3.6 Hz, 1H), 7.43 (d, *J* = 1.6 Hz, 2H), 7.55 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.70 (d, *J* = 3.2 Hz, 1H), 7.91 (d, *J* = 2.0 Hz, 1H), 8.13 (s, 1H), 8.20 (d, *J* = 9.2 Hz, 1H), 8.28 (t, *J* = 1.6 Hz, 1H), 8.58 (s, 1H); MS: 461(M+1).

Example-190: 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(1H-1,2,4-triazol-1-yl)-1H-indole

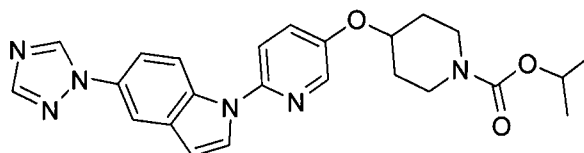


The title compound was prepared by following the similar procedure as described in Example-2 by using Example-189 (0.022g, 14%).

¹H NMR (400 MHz, CDCl₃) δ; 1.22 (t, *J* = 7.6 Hz, 3H), 1.86-1.94 (m, 2H), 2.09-2.14 (m, 2H), 2.51 (q, *J* = 7.6 Hz, 2H), 3.67-3.73 (m, 2H), 4.21-4.27 (m, 2H), 4.63-4.68 (m, 1H), 6.78

(d, $J = 3.6$ Hz, 1H), 7.41 (m, 2H), 7.57 (dd, $J = 8.8, 2.4$ Hz, 1H), 7.72 (d, $J = 3.2$ Hz, 1H), 7.93 (d, $J = 2.0$ Hz, 1H), 8.14 (s, 1H), 8.22 (bs, 2H), 8.23 (s, 1H), 8.32 (d, $J = 2.0$ Hz, 1H), 8.58 (bs, 1H); MS: 466 (M^+).

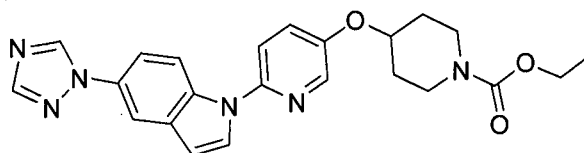
Example-191: Isopropyl 4-(((6-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-70 by using Example-189 (0.051g, 26%).

^1H NMR (400 MHz, CDCl_3) δ : 1.26 (d, $J = 6.4$ Hz, 6H), 1.79-1.87 (m, 2H), 1.97-2.03 (m, 2H), 3.40-3.46 (m, 2H), 3.71-3.81 (m, 2H), 4.54-4.58 (m, 1H), 4.91-4.94 (m, 1H), 6.77 (d, $J = 3.2$ Hz, 1H), 7.43 (d, $J = 1.6$ Hz, 1H), 7.55 (dd, $J = 8.8, 2.0$ Hz, 2H), 7.70 (d, $J = 3.2$ Hz, 1H), 7.91 (d, $J = 2.4$ Hz, 1H), 8.13 (s, 1H), 8.20 (d, $J = 8.8$ Hz, 1H), 8.27 (t, $J = 3.6, 1.6$ Hz, 1H), 8.56 (s, 1H); MS: 447 ($M+1$).

Example-192: Ethyl-4-(((6-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate

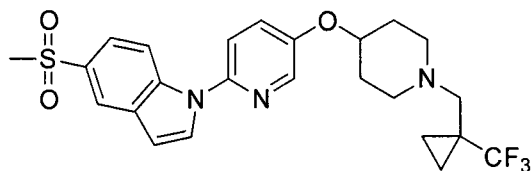


The title compound was prepared by following the similar procedure as described in Example-70 by using Example-189 (0.041g, 22%).

^1H NMR (400 MHz, CDCl_3) δ : 1.30 (t, $J = 7.2$ Hz, 3H), 1.84-1.90 (m, 2H), 1.99-2.05 (m, 2H), 3.44-3.52 (m, 2H), 3.77-3.83 (m, 2H), 4.18 (q, $J = 7.2$ Hz, 2H), 4.56-4.58 (m, 1H), 6.78 (d, $J = 3.6$ Hz, 1H), 7.44 (d, $J = 1.6$ Hz, 2H), 7.56 (dd, $J = 9.2, 2.0$ Hz, 1H), 7.72 (d, $J = 3.6$ Hz, 1H), 7.93 (d, $J = 1.6$ Hz, 1H), 8.14 (s, 1H), 8.22 (d, $J = 8.8$ Hz, 1H), 8.29 (t, $J = 3.2$ Hz, 1H), 8.66 (s, 1H); MS: 433 ($M+1$).

Example-193: 5-(Methylsulfonyl)-1-(5-((1-((1-(trifluoromethyl)cyclopropyl)methyl)-piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole

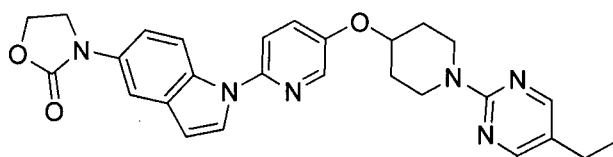
139



The title compound was prepared by following the similar procedure as described in Example-30 by using Example-175.

¹H NMR (400 MHz, CDCl₃) δ; 0.67 (m, 2H), 1.01-1.04 (m, 2H), 1.85-1.93 (m, 2H), 2.03-2.08 (m, 2H), 2.37-2.41 (m, 2H), 2.59 (s, 2H), 2.79 (bs, 2H), 3.10 (s, 3H), 4.40-4.44 (m, 1H), 6.83-6.84 (m, 1H), 7.40-7.45 (m, 2H), 7.73 (d, *J* = 3.6 Hz, 1H), 7.81 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.27-8.31 (m, 2H); MS: 494.2 (M+1).

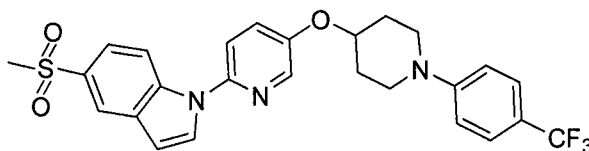
Example-194: 3-(1-(5-((1-(4-Ethylphenyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)oxazolidin-2-one



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-165 (0.031g, 20%).

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.2 Hz, 3H), 1.85-1.88 (m, 2H), 2.05-2.09 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.64-3.69 (m, 2H), 4.14 (q, *J* = 8.0 Hz, 2H), 4.18-4.24 (m, 2H), 4.50 (q, *J* = 7.6 Hz, 2H), 4.60-4.66 (m, 1H), 6.66 (d, *J* = 3.2 Hz, 1H), 7.41 (bs, 2H), 7.51 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.64 (d, *J* = 3.6 Hz, 1H), 7.71 (d, *J* = 2.4 Hz, 1H), 8.06 (d, *J* = 9.2 Hz, 1H), 8.19 (bs, 2H), 8.26 (d, *J* = 1.6 Hz, 1H); MS: 485 (M+1).

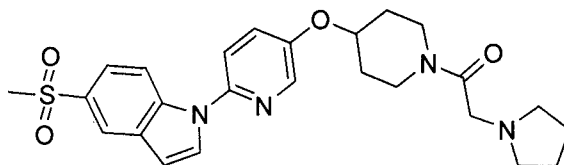
Example-195: 5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)phenyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-81 using Example-1 and 1-bromo-4-(trifluoromethyl)benzene (0.074g, 0.424mmol) (0.041 g, 23%).

¹H NMR (400 MHz, CDCl₃) δ; 2.00-2.03 (m, 2H), 2.12-2.19 (m, 2H), 3.08 (s, 3H), 3.24-3.30 (m, 2H), 3.59-3.65 (m, 2H), 4.58-4.61 (m, 1H), 6.82 (d, *J* = 3.2 Hz, 1H), 6.96 (d, *J* = 8.8 Hz, 2H), 7.40-7.50 (m, 4H), 7.72 (d, *J* = 3.2 Hz, 1H), 7.80 (d, *J* = 2.0 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.29 (d, *J* = 1.6 Hz, 2H); MS: 516 (M+1).

Example-196: 1-(4-(((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-(pyrrolidin-1-yl)ethanone

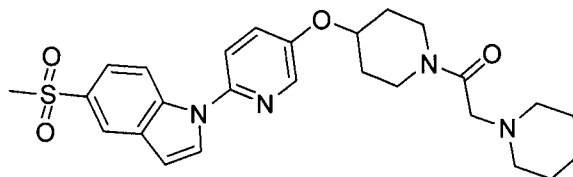


To a solution of 2-chloro-1-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone (0.080 g, 0.179 mmol) in DMF (2 mL), potassium iodide (0.009 g, 0.054 mmol), pyrrolidine (0.044 mL, 0.536 mmol), potassium carbonate (0.025 g, 0.179 mmol) were added and stirred at 80°C for 45 minutes. The reaction was quenched by adding water (20 mL), the mixture was extracted with ethyl acetate, organic layer was concentrated under reduced pressure. The resulting crude was purified by flash column chromatography to give 1-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-(pyrrolidin-1-yl)ethanone (0.045 g, 52.32%).

¹H NMR (400 MHz, CDCl₃) δ; 1.77-1.91 (m, 6H), 2.00-2.05 (m, 2H), 2.64 (s, 4H), 3.11 (s, 3H), 3.39 (s, 2H), 3.56-3.68 (m, 2H), 3.86-3.90 (m, 2H), 4.63-4.67 (m, 1H), 6.85 (d, *J* = 3.2 Hz, 1H), 7.43-7.48 (m, 2H), 7.74 (d, *J* = 3.2 Hz, 1H), 7.82 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.30-8.32 (m, 2H); MS: 483 (M+1).

Example-197: 1-(4-(((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-(piperidin-1-yl)ethanone

141

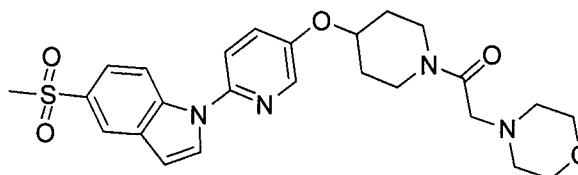


The title compound was prepared by following the similar procedure as described in Example-196 using 2-chloro-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone and piperidine (0.045 g, 50.56%).

- 5 ¹H NMR (400 MHz, CDCl₃) δ; 1.46 -1.47 (m, 2H), 1.58-1.64 (m, 4H), 1.85-2.07 (m, 4H), 2.47(bs, 4H), 3.11 (s, 3H), 3.20 (s, 2H), 3.60-3.67 (m, 2H), 3.85-3.93 (m, 2H), 4.64-4.67 (m, 1H), 6.85 (d, *J* = 3.6 Hz, 1H), 7.43-7.48 (m, 2H), 7.74 (d, *J* = 3.6 Hz, 1H), 7.82 (dd, *J* = 8.8, 1.6 Hz, 1H), 8.21(d, *J* = 8.8 Hz 1H), 8.31 -8.32 (m, 2H); MS: 497(M+1).

Example-198: 1-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidin-1-yl)-

- 10 2-morpholinoethanone

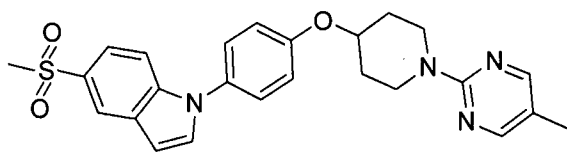


The title compound was prepared by following the similar procedure as described in Example-196 using 2-chloro-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone and morpholine. (0.050g, 56.18%).

- 15 ¹H NMR (400 MHz, CDCl₃) δ; 1.87-2.07 (m, 4H), 2.56 (bs, 4H), 3.11 (s, 3H), 3.25 (s, 2H), 3.58-3.71 (m, 2H), 3.75-3.77 (m, 4H), 3.83-3.91 (m, 2H), 4.65-4.68 (m, 1H), 6.85 (d, *J* = 3.2 Hz, 1H), 7.43-7.48 (m, 2H), 7.74 (d, *J* = 3.2 Hz, 1H), 7.82 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.31-8.32 (m, 2H); MS: 499 (M+1).

Example-199: 1-(4-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)phenyl)-5-(methyl

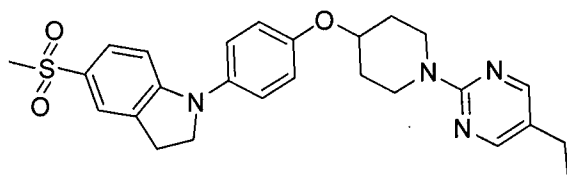
- 20 sulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-3 (0.049 g, 48%).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.87-1.89 (m, 2H), 2.06-2.10 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.09 (s, 3H), 3.65-3.72 (m, 2H), 4.18-4.24 (m, 2H), 4.62-4.63 (m, 1H), 6.80 (dd, *J* = 3.2, 0.8 Hz, 1H), 7.10 (dd, *J* = 6.8, 2.4 Hz, 2H), 7.38 (dd, *J* = 6.8, 2.4 Hz, 2H), 7.42 (d, *J* = 3.2 Hz, 1H), 7.54 (d, *J* = 8.8 Hz, 1H), 7.73 (dd, *J* = 8.8, 2.0 Hz, 1H), 8.20 (s, 2H), 8.32 (d, *J* = 1.6 Hz, 1H); MS: 477 (M+1).

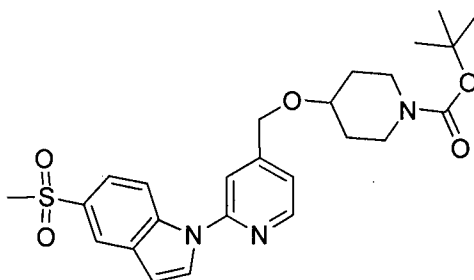
Example-200: 1-(4-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)phenyl)-5-(methylsulfonyl)indoline



The title compound was prepared by following the similar procedure as described in Example-2 using *tert*-Butyl 4-(4-(5-(methylsulfonyl)indolin-1-yl)phenoxy)piperidine-1-carboxylate (intermediate 80) (0.035g, 34%).

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.6 Hz, 3H), 1.80-1.86 (m, 2H), 2.00-2.06 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.10 (s, 3H), 3.19 (t, *J* = 8.4 Hz, 2H), 3.60-3.67 (m, 2H), 4.03 (t, *J* = 8.4 Hz, 2H), 4.16-4.22 (m, 2H), 4.50-4.53 (m, 1H), 6.81 (d, *J* = 7.6 Hz, 1H), 6.97 (dd, *J* = 6.4, 2.0 Hz, 2H), 7.19 (dd, *J* = 6.8, 2.4 Hz, 2H), 7.57 (s, 1H), 7.59 (d, *J* = 7.2 Hz, 1H), 8.18 (s, 1H); MS: 479 (M+1).

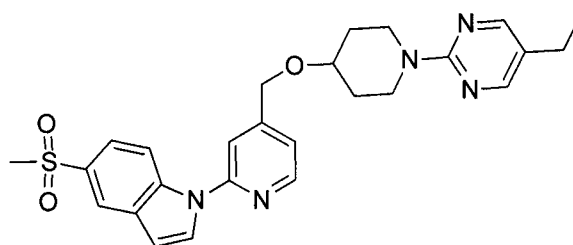
Example-201: *tert*-Butyl 4-((2-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-4-yl)methoxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate 21) and *tert*-Butyl 4-((2-chloropyridin-4-yl)methoxy)piperidine-1-carboxylate (intermediate 44).

¹H NMR (400 MHz, CDCl₃) δ; 1.46 (s, 9H), 1.62-1.66 (m, 2H), 1.91 (m, 2H), 3.08 (s, 3H), 3.12-3.18 (m, 2H), 3.62-3.66 (m, 1H), 3.79-3.82 (m, 2H), 4.68 (s, 2H), 6.85-6.86 (m, 1H), 7.21 (d, *J* = 5.2, 1H), 7.49 (s, 1H), 7.81-7.84 (m, 2H), 8.29 (d, *J* = 1.6, 1H), 8.39 (d, *J* = 9.2, 1H), 8.54-8.55 (m, 1H); MS: 484.3 (M+1).

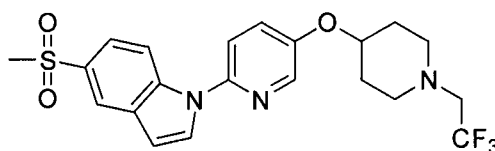
Example-202: 1-(4-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4 yl)oxy)methyl)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-201.

¹H NMR (400MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.66-1.74 (m, 2H), 1.99-2.04 (m, 2H), 2.46 (q, *J* = 7.6 Hz, 2H), 3.08 (s, 3H), 3.37-3.43 (m, 2H), 3.71-3.76 (m, 1H), 4.29-4.39 (m, 2H), 4.71 (s, 2H), 6.84 (d, *J* = 3.2 Hz, 1H), 7.22 (d, *J* = 5.6 Hz, 1H), 7.51 (s, 1H), 7.80-7.82 (m, 2H), 8.17 (s, 2H), 8.28 (d, *J* = 1.6 Hz, 1H), 8.39 (d, *J* = 8.8 Hz, 1H), 8.54 (d, *J* = 4.8 Hz, 1H); MS: 492.2 (M+1).

Example-203: 5-(Methylsulfonyl)-1-(5-(((1-(2,2,2-trifluoroethyl)piperidin-4-yl)oxy) pyridin-2-yl)-1H-indole



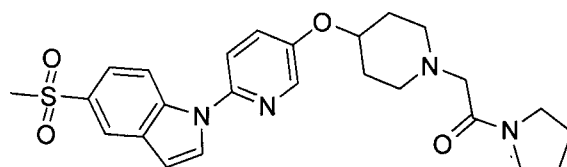
To a stirred solution of example 172 (0.10 g, 0.214 mmol) in dry THF (10 mL) borane-methyl sulfide complex (0.041 mL, 0.428 mmol) was added at 0°C and heated at 65 °C for 3 h. Reaction was quenched with 10% HCl at 0°C and extracted with ethyl acetate. Organic

layer was concentrated in vacuo and residue was purified by flash column chromatography to give 5-(methylsulfonyl)-1-(5-((1-(2,2,2-trifluoroethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole (0.014 g, 14%)

¹H NMR (400MHz, CDCl₃) δ; 1.95 (bs, 2H), 2.08 (bs, 2H), 2.67-2.69 (m, 2H), 2.97-3.11 (m, 7H), 4.46 (bs, 1H), 6.84 (d, *J* = 2.4 Hz, 1H), 7.43 (bs, 2H), 7.74 (d, *J* = 1.2 Hz, 1H), 7.81 (d, *J* = 8.4 Hz, 1H), 8.20 (d, *J* = 8.4 Hz, 1H), 8.30 (d, *J* = 9.6 Hz, 2H)

MS: 453.48 (M⁺).

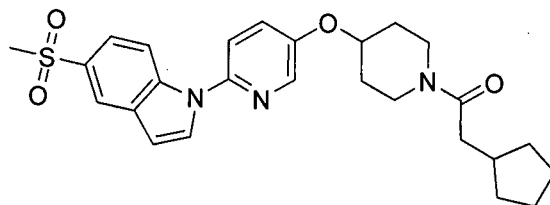
Example-204: 2-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1-(pyrrolidin-1-yl)ethanone



To a stirred solution of 2-chloro-1-(pyrrolidin-1-yl)ethanone (Intermediate 71) (0.055 g, 0.366 mmol) in DMF (2 mL), potassium iodide (0.023 g, 0.137 mmol), 5-(methylsulfonyl)-1-(5-(piperidin-4-yloxy)pyridin-2-yl)-1H-indole (0.170 g, 0.458 mmol) and potassium carbonate (0.064 g, 0.458 mmol) were added. The resulting mixture was heated at 80°C for 45 minutes. Reaction was quenched with water and extracted with ethyl acetate. The organic extract was concentrated in vacuo and resultant residue was purified by column chromatography to yield title compound (0.075 g, 33.3%).

¹H NMR (400MHz, CDCl₃) δ; 1.85-1.91 (m, 6H), 1.95-2.11 (m, 2H), 2.55 (bs, 2H), 2.89 (bs, 2H), 3.00 (s, 3H), 3.10 (s, 2H), 3.51 (t, *J* = 6.4 Hz, 4H), 4.44 (bs, 1H), 6.83 (d, *J* = 2.4 Hz, 1H), 7.42 (bs, 2H), 7.73 (d, *J* = 3.2 Hz, 1H), 7.81 (d, *J* = 8.0 Hz, 1H), 8.19 (d, *J* = 8.8 Hz, 1H), 8.30 (d, *J* = 9.6 Hz, 2H); MS: 482.98 (M⁺).

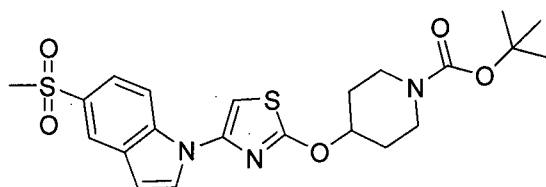
Example-205: 2-Cyclopentyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone



The title compound was prepared by following the similar procedure as described in Example-127 by using Example-1 and 2-cyclopentylacetic acid.

¹H NMR (400 MHz, CDCl₃) δ; 1.20-1.28 (m, 4H), 1.58-1.66 (m, 4H), 1.88-1.89 (m, 2H), 2.02-2.04 (m, 2H), 2.23-2.31 (m, 1H), 2.40-2.42 (m, 2H), 3.11 (s, 3H), 3.48-3.50 (m, 1H), 3.67-3.68 (m, 1H), 3.78-3.80 (m, 1H), 3.85-3.87 (m, 1H), 4.65 (m, 1H), 6.85 (d, *J* = 2.8 Hz, 1H), 7.45 (s, 2H), 7.74 (d, *J* = 3.2 Hz, 1H), 7.81-7.83 (m, 1H), 8.21 (d, *J* = 8.8 Hz, 1H), 8.31 (d, *J* = 2.4 Hz, 2H); MS: 481.9 (M⁺).

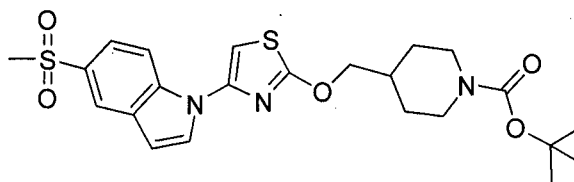
Example-206: *tert*-Butyl-4-((4-(5-(methylsulfonyl)-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate 21) and *tert*-butyl 4-((4-bromothiazol-2-yl)oxy)piperidine-1-carboxylate (intermediate 46) (0.007g, 5%).

¹H NMR (400 MHz, CDCl₃) δ; 1.47 (s, 9H), 1.87-1.91 (m, 2H), 2.04-2.09 (m, 2H), 3.08 (s, 3H), 3.35-3.42 (m, 2H), 3.70-3.74 (m, 2H), 5.21-5.23 (m, 1H), 6.49 (s, 1H), 6.77 (d, *J* = 3.2 Hz, 1H), 7.64 (d, *J* = 3.6 Hz, 1H), 7.80 (dd, *J* = 8.8, 1.8 Hz, 1H), 7.98 (d, *J* = 8.8 Hz, 1H), 8.27 (d, *J* = 1.6 Hz, 1H); MS: 477 (M+1).

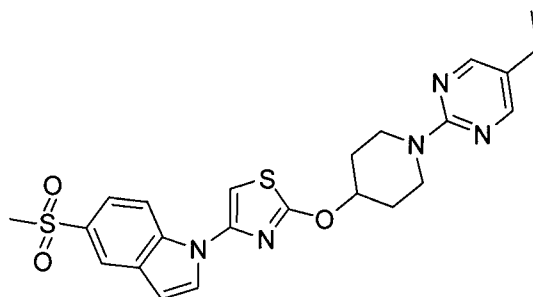
Example-207: *tert*-Butyl-4-(((4-(5-(methylsulfonyl)-1H-indol-1-yl)thiazol-2-yl)oxy)methyl)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 by using 5-(methylsulfonyl)-1H-indole (intermediate-21) and *tert*-Butyl 4-(((4-bromothiazol-2-yl)oxy)methyl)piperidine-1-carboxylate (intermediate 47) (0.013g, 10%).

¹H NMR (400 MHz, CDCl₃) δ; 1.29-1.33 (m, 2H), 1.47 (s, 9H), 1.81-1.83 (m, 2H), 2.02-2.05 (m, 1H), 2.75 (bs, 2H), 3.10 (s, 3H), 4.18 (bs, 2H), 4.36 (d, *J* = 6.4 Hz, 2H), 6.51 (s, 1H), 6.77 (d, *J* = 3.2 Hz, 1H), 7.65 (d, *J* = 3.2 Hz, 1H), 7.79-7.82 (m, 1H), 8.02 (d, *J* = 8.8 Hz, 1H), 8.28 (bs, 1H); MS: 491.6 (M+1).

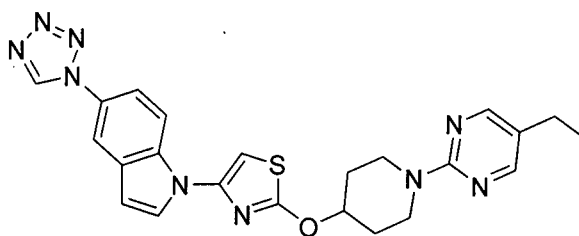
- 5 **Example-208:** 2-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)-4-(5-(methyl-sulfonyl)-1H-indol-1-yl)thiazole



The title compound was prepared by following the similar procedure as described in Example-2 by using Example-206 (0.015g, 29%).

- 10 ¹H NMR (400 MHz, CDCl₃) δ; 1.90 (d, *J* = 7.6 Hz, 3H), 1.92-1.98 (m, 2H), 2.13-2.18 (m, 2H), 2.47 (q, *J* = 7.6 Hz, 2H), 3.08 (s, 3H), 3.67-3.73 (m, 2H), 4.15-4.21 (m, 2H), 5.28-5.32 (m, 1H), 6.50 (s, 1H), 6.77 (d, *J* = 3.6 Hz, 1H), 7.65 (d, *J* = 3.6 Hz, 1H), 7.78-7.81 (m, 1H), 8.0 (d, *J* = 8.8 Hz, 1H), 8.18 (bs, 2H), 8.28 (s, 1H); MS: 484 (M+1).

- 15 **Example-209:** 4-(5-(1H-Tetrazol-1-yl)-1H-indol-1-yl)-2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazole

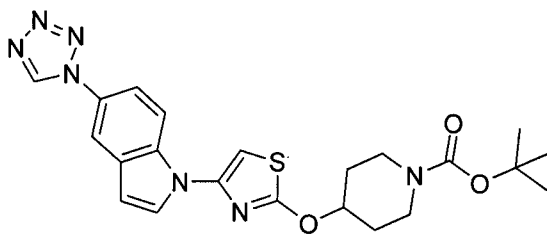


- 20 To a stirred solution of 1-(2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-amine (0.090 g, 0.214 mmol) in acetic acid (3 mL), triethylorthoformate (0.047 g, 0.324 mmol) and NaN₃ (0.020 g, 324 mmol) were added and stirred at 100°C for 1 h. The reaction was quenched with water and the mixture was extracted with ethyl acetate. The organic layer was concentrated *in vacuo* and the residue was purified by flash column

chromatography to give 4-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)-2-((4-(5-ethylpyrazin-2-yl)cyclohexyl)oxy)thiazole (0.012 g, 11%)

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.94-2.01 (m, 2H), 2.16-2.21 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H), 3.69-3.76 (m, 2H), 4.22-4.16 (m, 2H), 5.32-5.35 (m, 1H), 6.50 (s, 1H), 6.76 (m, 1H), 7.54 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.68 (d, *J* = 3.6 Hz, 1H), 7.94 (d, *J* = 2.0 Hz, 1H), 8.06 (d, *J* = 3.6 Hz, 1H), 8.20 (s, 2H), 9.01 (s, 1H); MS: 474.1 (M+1).

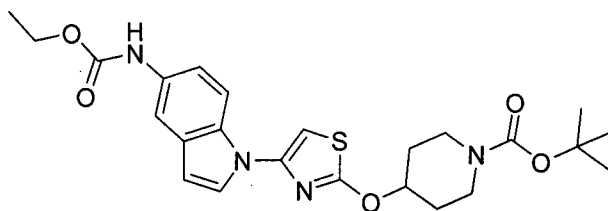
Example-210: *tert*-Butyl-4-((4-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-209 using *tert*-butyl 4-((4-(5-amino-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate (intermediate-35).

¹H NMR (400 MHz, CDCl₃) δ; 1.47 (s, 9H), 1.90-1.95 (m, 2H), 2.07-2.12 (m, 2H), 3.39-3.46 (m, 2H), 3.71-3.77 (m, 2H), 5.24-5.28 (m, 1H), 6.51 (s, 1H), 6.76-6.77 (m, 1H), 7.56 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.67 (d, *J* = 3.6 Hz, 1H), 7.94 (d, *J* = 2 Hz, 1H), 8.04 (d, *J* = 8.8 Hz, 1H), 9.01 (s, 1H); MS: 468.1 (M+1).

Example-211: *tert*-Butyl-4-((4-(5-((ethoxycarbonyl)amino)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate

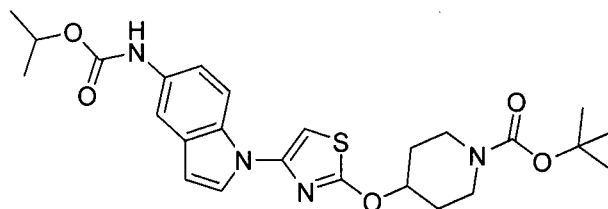


To a stirred solution of *tert*-butyl 4-((4-(5-amino-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate (intermediate-35) (0.100 g, 0.214 mmol) in dichloromethane (4 mL),

triethylamine (0.036 g, 0.362 mmol), and chloroethylformate (0.026 g, 0.214 mmol) were added at 0 °C and stirred at room temperature for 10 minutes. The reaction was quenched with water and the mixture was extracted with dichloromethane. The organic layer was concentrated *in vacuo* and the residue was purified by flash column chromatography to give
 5 tert-butyl 4-((4-(5-((ethoxycarbonyl)amino)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate (0.010 g, 8.5%)

¹H NMR (400 MHz, CDCl₃) δ; 1.32 (t, *J* = 6.8 Hz, 3H), 1.47 (s, 9H), 1.86-1.90 (m, 2H), 2.03-2.09 (m, 2H), 3.34-3.41 (m, 2H), 3.69-3.74 (m, 2H), 4.23 (q, *J* = 7.2 Hz, 2H), 5.21-5.23 (m, 1H), 6.36 (s, 1H), 6.56 (d, *J* = 3.2 Hz, 2H), 7.19 (d, *J* = 9.2 Hz, 1H), 7.52 (d, *J* = 3.6 Hz,
 10 1H), 7.70 (bs, 1H), 7.76 (d, *J* = 8.8 Hz, 1H); MS: 487.1 (M+1).

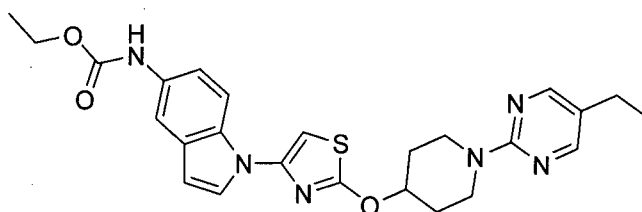
Example-212: *tert*-Butyl-4-((4-(5-((isopropoxycarbonyl)amino)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in
 15 Example-211 using *tert*-butyl 4-((4-(5-amino-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate (intermediate-35).

¹H NMR (400MHz, CDCl₃) δ; 1.33 (d, *J* = 6.4 Hz, 6H), 1.49 (s, 9H), 1.89-1.92 (m, 2H), 2.06-2.11 (m, 2H), 3.36-3.43 (m, 2H), 3.72-3.76 (m, 2H), 5.02-5.08 (m, 1H), 5.22-5.26 (m, 1H), 6.38 (s, 1H), 6.57 (m, 2H), 7.21 (d, *J* = 8.8 Hz, 1H), 7.54 (d, *J* = 3.2 Hz, 1H), 7.77 (m,
 20 2H); MS: 400.1 (M-100).

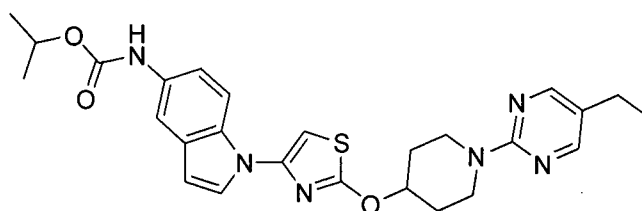
Example-213: Ethyl (1-(2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-yl)carbamate



The title compound was prepared by following the similar procedure as described in Example-211 using 1-(2-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-amine (intermediate-34) (0.010g, 22%).

¹H NMR (400 MHz, CDCl₃) δ; 1.19 (t, *J* = 7.6 Hz, 3H), 1.32 (t, *J* = 7.2 Hz, 3H), 1.92-1.97 (m, 2H), 2.13-2.17 (m, 2H), 2.47 (q, *J* = 7.2 Hz, 2H), 3.70-3.72 (m, 2H), 4.16-4.26 (m, 4H), 5.29-5.32 (m, 2H), 6.37 (s, 1H), 6.57 (d, *J* = 3.2 Hz, 2H), 7.18 (d, *J* = 9.6 Hz, 1H), 7.51-7.55 (m, 1H), 7.72 (s, 1H), 7.79 (d, *J* = 8.8 Hz, 1H), 8.20 (s, 1H); MS: 493.1 (M+1).

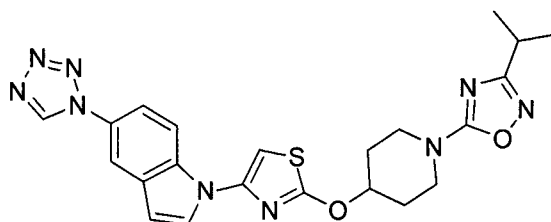
Example-214: Isopropyl (1-(2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-yl)carbamate



The title compound was prepared by following the similar procedure as described in Example-212 using 1-(2-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-amine (intermediate 34).

¹H NMR (400 MHz, CDCl₃) δ; 1.20 (t, *J* = 7.6 Hz, 3H), 1.32 (d, *J* = 2.8 Hz, 6H), 1.93-1.98 (m, 2H), 2.14-2.19 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H), 3.68-3.73 (m, 2H), 4.15-4.21 (m, 2H), 5.02-5.05 (m, 2H), 5.31-5.32 (m, 1H), 6.37 (s, 1H), 6.57 (d, *J* = 3.6 Hz, 2H), 7.13-7.21 (m, 1H), 7.52-7.55 (m, 1H), 7.69-7.73 (m, 1H), 7.79 (d, *J* = 8.8 Hz, 1H), 8.04 (s, 1H); MS: 507.1 (M+1).

Example-215: 5-(4-((4-(5-(1H-Tetrazol-1-yl)-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidin-1-yl)-3-isopropyl-1,2,4-oxadiazole

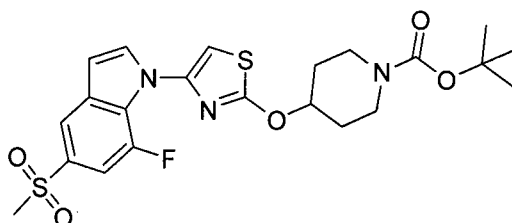


150

The title compound was prepared by following the similar procedure as described in Example- 209 using 1-(2-((1-(3-isopropyl-1, 2, 4-oxadiazol-5-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-amine (intermediate 70).

¹H NMR (400 MHz, CDCl₃) δ; 1.30 (d, *J* = 7.2 Hz, 6H), 2.09-2.23 (m, 4H), 2.88-2.95 (m, 1H), 3.68-3.74 (m, 2H), 3.83-3.89 (m, 2H), 5.35-3.39 (m, 1H), 6.54 (s, 1H), 6.77 (d, *J* = 3.2 Hz, 1H), 7.57 (dd, *J* = 8.8 Hz, *J* = 2.4 Hz, 1H), 7.67 (d, *J* = 3.2 Hz, 1H), 7.95 (d, *J* = 2.0 Hz, 1H), 8.03 (d, *J* = 8.8 Hz, 1H), 9.02 (s, 1H); MS: 478.1(M+1).

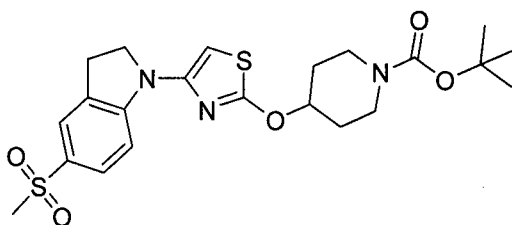
Example-216: *tert*-Butyl 4-((4-(7-fluoro-5-(methylsulfonyl)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using 7-Fluoro-5-(methylsulfonyl)-1H-indole (intermediate 22) and *tert*-butyl 4-((4-bromothiazol-2-yl)oxy)piperidine-1-carboxylate (intermediate 46).

¹H NMR (400 MHz, CDCl₃) δ; 1.46 (s, 9H), 1.82-1.87 (m, 2H), 2.00-2.06 (m, 2H), 3.09 (s, 3H), 3.30-3.37 (m, 2H), 3.70-3.73 (m, 2H), 5.14-5.19 (m, 1H), 6.61 (d, *J* = 2.8 Hz, 1H), 6.78-6.80 (m, 1H), 7.47-7.51 (m, 1H), 7.55 (d, *J* = 3.2 Hz, 1H), 8.07 (d, *J* = 1.6 Hz, 1H); MS: 518.1(M+23).

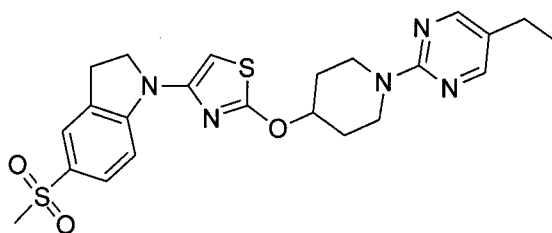
Example-217: *tert*-Butyl-4-((4-(5-(methylsulfonyl)indolin-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using 5-(methylsulfonyl)indoline (intermediate 26) and *tert*-Butyl 4-((4-bromothiazol-2-yl)oxy)piperidine-1-carboxylate (intermediate 46).

¹H NMR (400 MHz, CDCl₃) δ; 1.47 (s, 9H), 1.88-1.92 (m, 2H), 2.04-2.10 (m, 2H), 3.03 (s, 3H), 3.25 (t, *J* = 8.8 Hz, 2H), 3.39-3.45 (m, 2H), 3.69-3.75 (m, 2H), 4.00 (t, *J* = 8.8 Hz, 2H), 5.15-5.18 (m, 1H), 5.58 (s, 1H), 7.63 (s, 1H), 7.70-7.74 (m, 2H); MS: 480.0 (M+1).

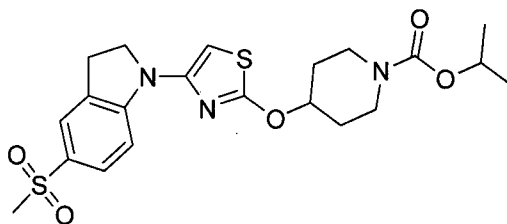
Example-218: 2-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)-4-(5-(methylsulfonyl)indolin-1-yl)thiazole



The title compound was prepared by following the similar procedure as described in Example- 2 by using Example-217.

¹H NMR (400 MHz, CDCl₃) δ; 1.21 (t, *J* = 7.6 Hz, 3H), 1.95-1.98 (m, 2H), 2.12-2.18 (m, 2H), 2.48 (q, *J* = 7.6 Hz, 2H), 3.03 (s, 3H), 3.24 (t, *J* = 8.8 Hz, 2H), 3.74 (m, 2H), 4.00 (t, *J* = 8.4 Hz, 2H), 4.09-4.19 (m, 2H), 5.22-5.25 (m, 1H), 5.28 (s, 1H), 7.62 (bs, 1H), 7.65-8.20 (m, 2H), 8.70 (s, 2H); MS: 486.0(M+1).

Example-219: Isopropyl 4-((4-(5-(methylsulfonyl)indolin-1-yl)thiazol-2-yl)oxy) piperidine-1-carboxylate

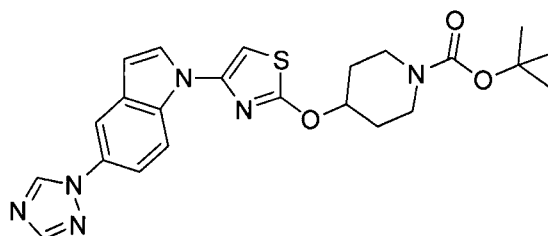


The title compound was prepared by following the similar procedure as described in Example-70 by using Example-217.

¹H NMR (400 MHz, CDCl₃) δ; 1.26 (d, *J* = 6.4 Hz, 6H), 1.89-1.93 (m, 2H), 2.03-2.09 (m, 2H), 3.02 (s, 3H), 3.23 (t, *J* = 8.8 Hz, 2H), 3.43-3.48 (m, 2H), 3.70-3.75 (m, 2H), 3.99 (t, *J* =

8.8 Hz, 2H), 4.90-4.97 (m, 1H), 5.15-5.19 (m, 1H), 5.58 (s, 1H), 7.61 (s, 1H), 7.61-7.72 (m, 2H); MS: 466.0 (M+1).

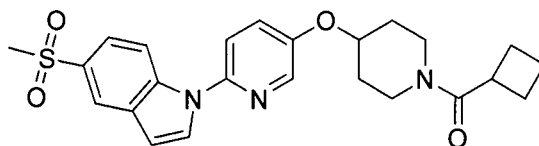
Example-220: *tert*-Butyl 4-((4-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate



The title compound was prepared by following the similar procedure as described in Example-1 using *tert*-Butyl 4-((4-bromothiazol-2-yl)oxy)piperidine-1-carboxylate (intermediate 46) and 5-(1H-1,2,4-triazol-1-yl)-1H-indole (intermediate 58).

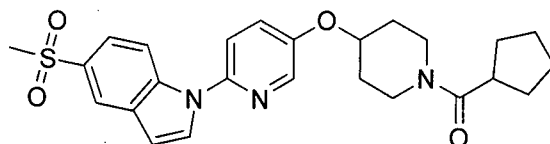
¹H NMR (400 MHz, CDCl₃) δ: 1.48 (s, 9H), 1.89-1.93 (m, 2H), 2.06-2.11 (m, 2H), 3.37-3.43 (m, 2H), 3.70-3.76 (m, 2H), 5.25-5.30 (m, 1H), 6.47 (s, 1H), 6.71 (d, *J* = 3.2 Hz, 1H), 7.56 (dd, *J* = 8.8, 2.0 Hz, 1H), 7.63 (d, *J* = 3.6 Hz, 1H), 7.90 (d, *J* = 2.0 Hz, 1H), 7.97 (d, *J* = 8.8 Hz, 1H), 8.13 (s, 1H), 8.56 (s, 1H); MS: 367.0 (M-100).

Example-221: Cyclobutyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone



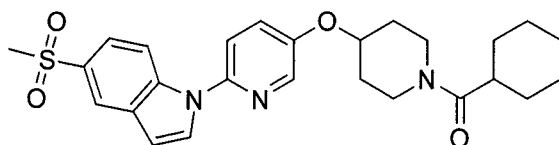
The title compound was prepared by following the similar procedure as described in Example-127 by using Example-1 and cyclobutanecarboxylic acid (0.035 g, 18%); MS: 453.98 (M⁺).

Example-222: Cyclopentyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone



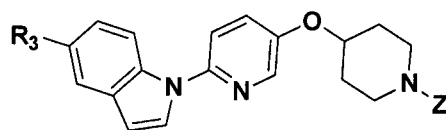
The title compound was prepared by following the similar procedure as described in Example-127 by using Example-1 and cyclopentanecarboxylic acid (0.020 g, 10%); MS: 468.1 (M+1).

Example-223: Cyclohexyl(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone



The title compound was prepared by following the similar procedure as described in Example-127 by using Example-1 and cyclohexanecarboxylic acid (0.068 g, 33%); MS: 481.9 (M⁺).

Following examples given Table-1 may be prepared by following one or more procedure as described herein above

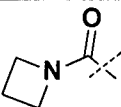
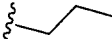
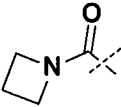
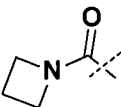
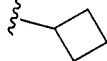
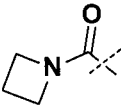
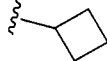
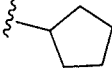
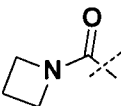
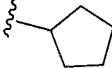
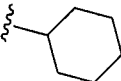
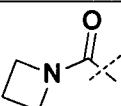
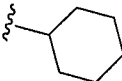
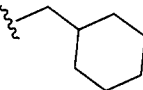
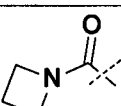
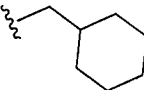
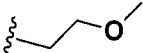
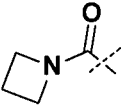
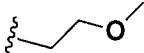
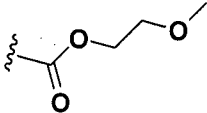
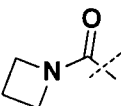
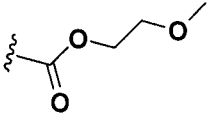
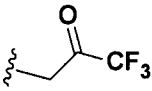
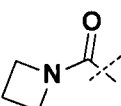
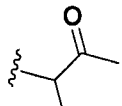
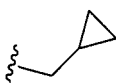
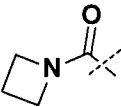
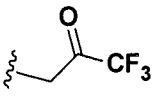
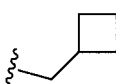
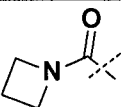
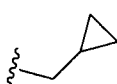
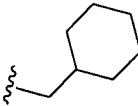
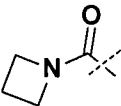
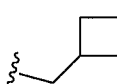


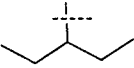
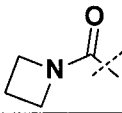
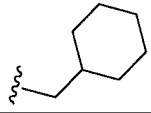
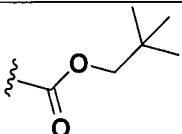
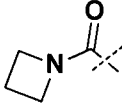
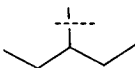
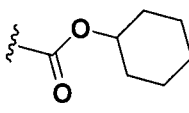
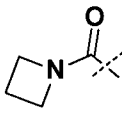
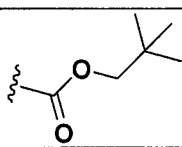
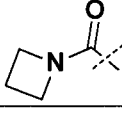
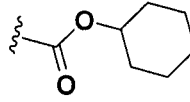
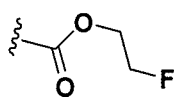
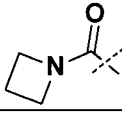
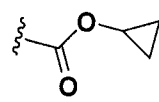
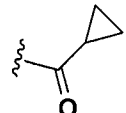
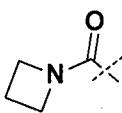
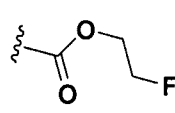
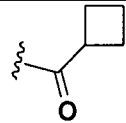
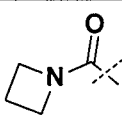
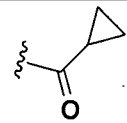
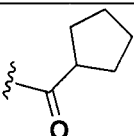
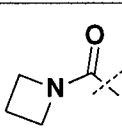
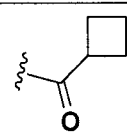
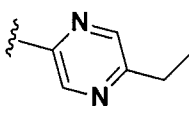
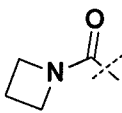
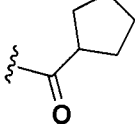
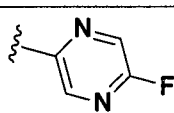
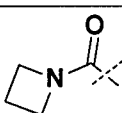
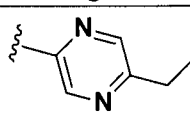
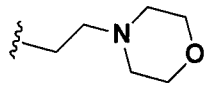
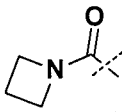
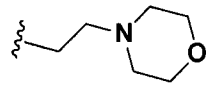
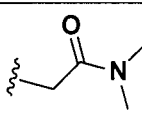
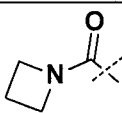
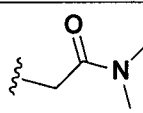
(VI)

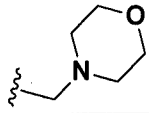
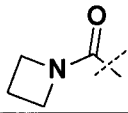
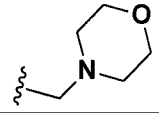
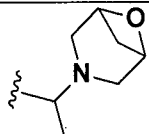
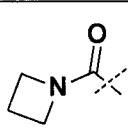
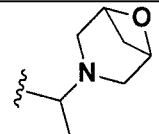
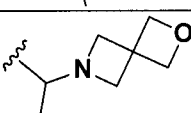
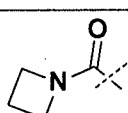
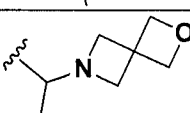
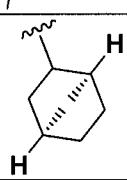
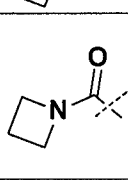
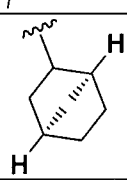
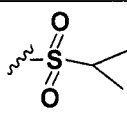
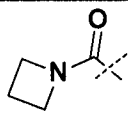
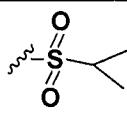
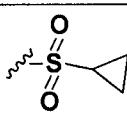
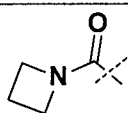
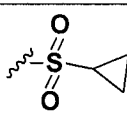
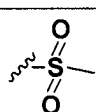
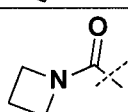
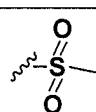
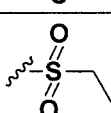
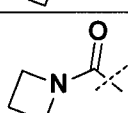
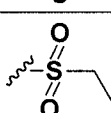
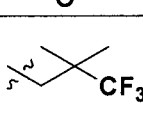
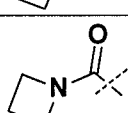
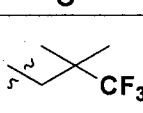
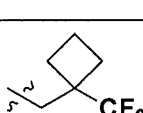
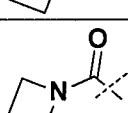
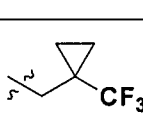
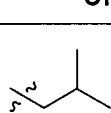
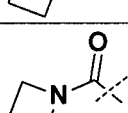
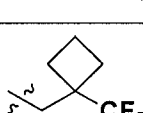
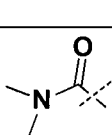
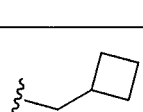
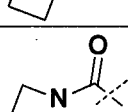
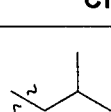
Table-1:

Example	R ₃	Z	Example	R ₂	Z
224	H ₃ CO ₂ S-		329		
225	H ₃ CO ₂ S-		330		
226	H ₃ CO ₂ S-		331		
227	H ₃ CO ₂ S-		332		

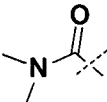
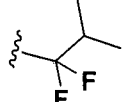
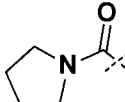
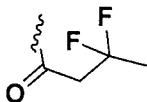
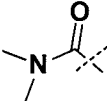
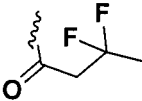
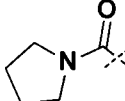
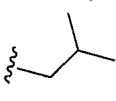
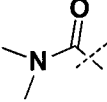
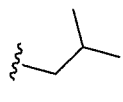
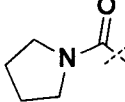
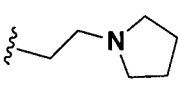
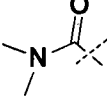
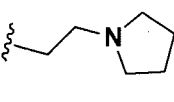
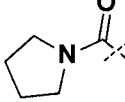
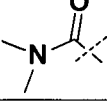
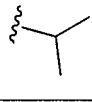
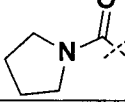
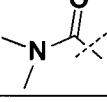
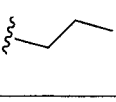
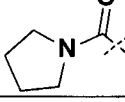
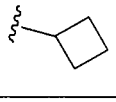
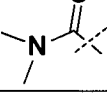
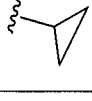
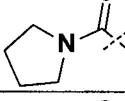
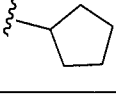
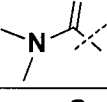
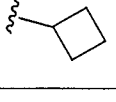
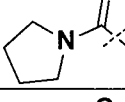
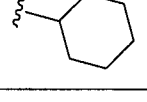
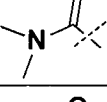
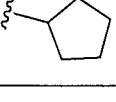
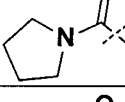
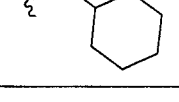
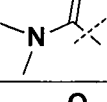
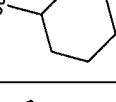
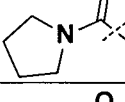
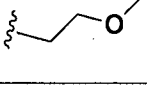
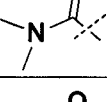
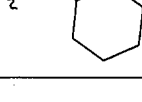
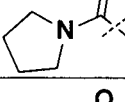
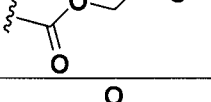
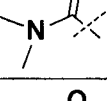
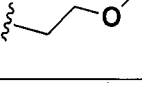
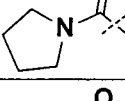
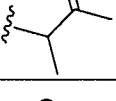
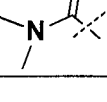
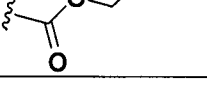
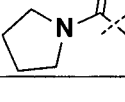
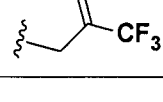
Example	R ₃	Z	Example	R ₂	Z
228	H ₃ CO ₂ S—		333		
229	H ₃ CO ₂ S—		334		
230	H ₃ CO ₂ S—		335		
231	H ₃ CO ₂ S—		336		
232	H ₃ CO ₂ S—		337		
233	H ₃ CO ₂ S—		338		
234	H ₃ CO ₂ S—		339		
235	H ₃ CO ₂ S—		340		
236	H ₃ CO ₂ S—		341		
237	H ₃ CO ₂ S—		342		
238	H ₃ CO ₂ S—		343		
239	H ₃ CO ₂ S—		344		

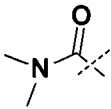
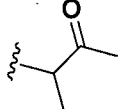
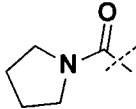
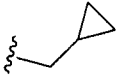
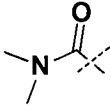
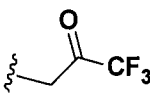
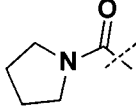
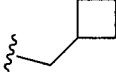
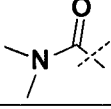
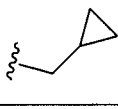
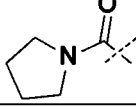
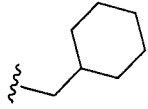
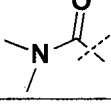
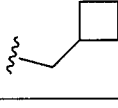
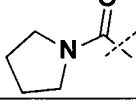
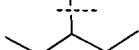
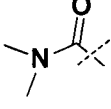
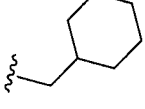
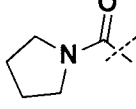
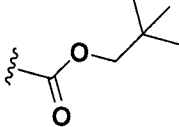
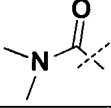
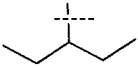
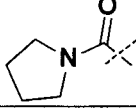
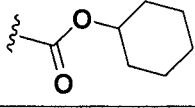
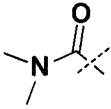
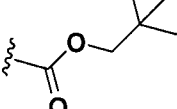
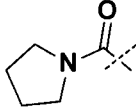
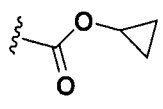
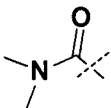
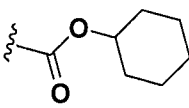
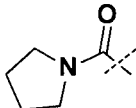
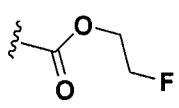
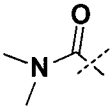
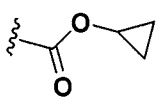
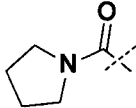
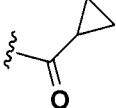
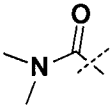
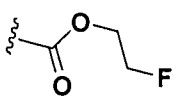
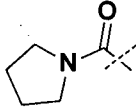
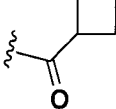
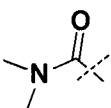
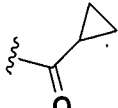
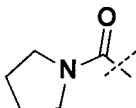
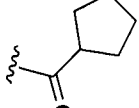
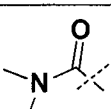
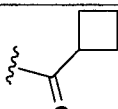
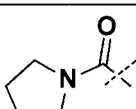
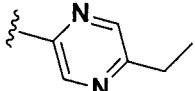
Example	R ₃	Z	Example	R ₂	Z
240	H ₃ CO ₂ S—		345		
241	H ₃ CO ₂ S—		346		
242	H ₃ CO ₂ S—		347		
423	H ₃ CO ₂ S—		348		
244	H ₃ CO ₂ S—		349		
245	H ₃ CO ₂ S—		350		
246	H ₃ CO ₂ S—		351		
247	H ₃ CO ₂ S—		352		
248	H ₃ CO ₂ S—		353		
249	H ₃ CO ₂ S—		354		
250	H ₃ CO ₂ S—		355		
251	H ₃ CO ₂ S—		356		
252	H ₃ CO ₂ S—		357		

Example	R ₃	Z	Example	R ₂	Z
253	H ₃ CO ₂ S- 		358		
254	H ₃ CO ₂ S- 		359		
255	H ₃ CO ₂ S- 		360		
256	H ₃ CO ₂ S- 		361		
257	H ₃ CO ₂ S- 		362		
258	H ₃ CO ₂ S- 		363		
259	H ₃ CO ₂ S- 		364		
260	H ₃ CO ₂ S- 		365		
261	H ₃ CO ₂ S- 		366		
262	H ₃ CO ₂ S- 		367		
263	H ₃ CO ₂ S- 		368		
264	H ₃ CO ₂ S- 		369		

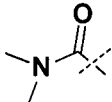
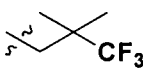
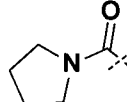
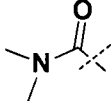
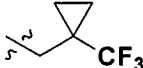
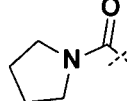
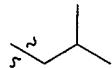
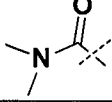
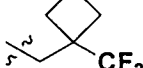
Example	R ₃	Z	Example	R ₂	Z
265	H ₃ CO ₂ S—		370		
266	H ₃ CO ₂ S—		371		
267	H ₃ CO ₂ S—		372		
268	H ₃ CO ₂ S—		373		
269	H ₃ CO ₂ S—		374		
270	H ₃ CO ₂ S—		375		
271	H ₃ CO ₂ S—		376		
272	H ₃ CO ₂ S—		377		
273	H ₃ CO ₂ S—		378		
274	H ₃ CO ₂ S—		379		
275	H ₃ CO ₂ S—		380		
276			381		

Example	R ₃	Z	Example	R ₂	Z
277			382		
278			383		
279			384		
280			385		
280			386		
282			387		
283			388		
284			389		
285			390		
286			391		
287			392		
288			393		

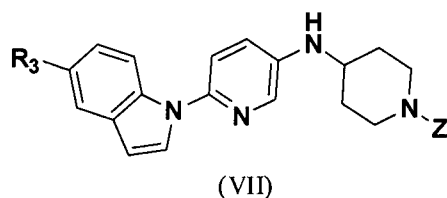
Example	R ₃	Z	Example	R ₂	Z
289			394		
290			395		
291			396		
292			397		
293			398		
294			399		
295			400		
296			401		
297			402		
298			403		
299			404		
300			405		
301			406		

Example	R ₃	Z	Example	R ₂	Z
302			407		
303			408		
304			409		
305			410		
306			411		
307			412		
308			413		
309			414		
310			415		
311			416		
312			417		
313			418		

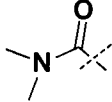
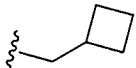
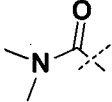
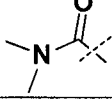
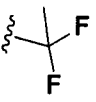
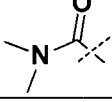
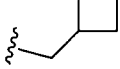
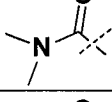
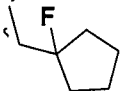
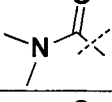
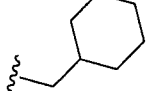
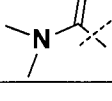
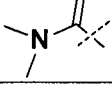
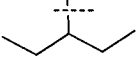
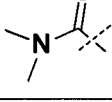
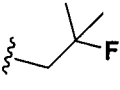
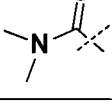
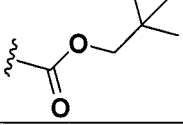
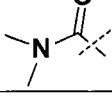
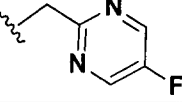
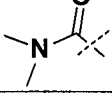
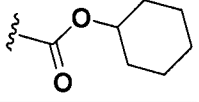
Example	R ₃	Z	Example	R ₂	Z
314			419		
315			420		
316			421		
317			422		
318			423		
319			424		
320			425		
321			426		
322			427		
323			428		
324			429		
325			430		

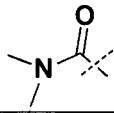
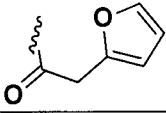
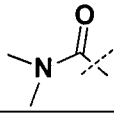
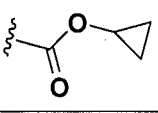
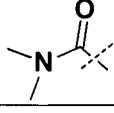
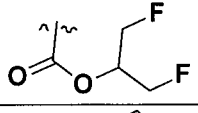
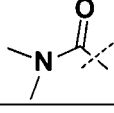
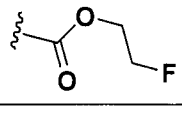
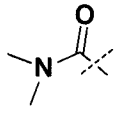
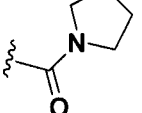
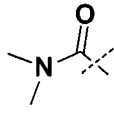
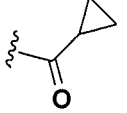
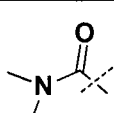
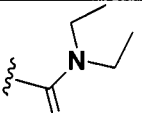
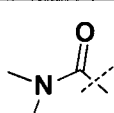
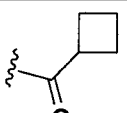
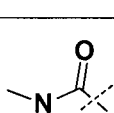
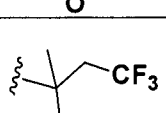
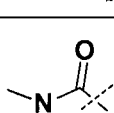
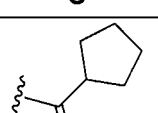
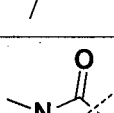
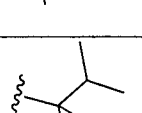
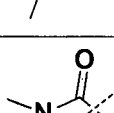
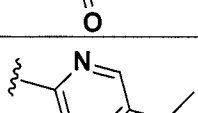
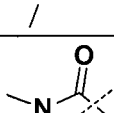
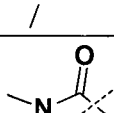
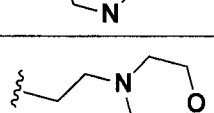
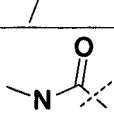
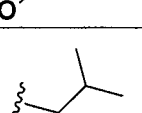
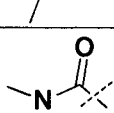
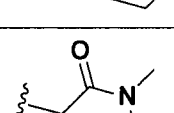
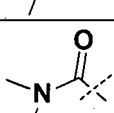
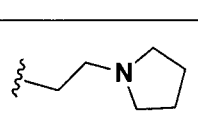
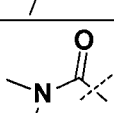
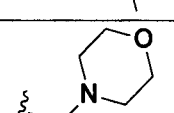
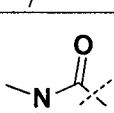
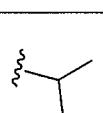
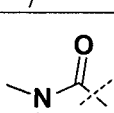
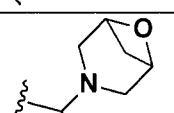
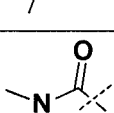
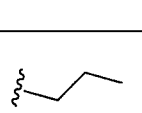
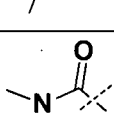
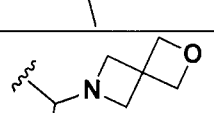
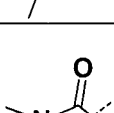
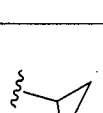
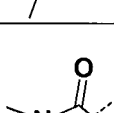
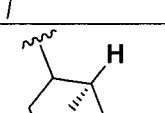
Example	R ₃	Z	Example	R ₂	Z
326			431		
327			432		
328					

Following examples in Table-2 may be prepared by following one or more procedure as described herein above



5 Table-2:

Example	R ₃	Z	Example	R ₂	Z
433			459		
434			460		
435			461		
436			462		
437			463		
438			464		

Example	R ₃	Z	Example	R ₂	Z
439			465		
440			466		
441			467		
442			468		
443			469		
444			470		
445			471		
446			472		
447			473		
448			474		
449			475		
450			476		

Example	R ₃	Z	Example	R ₂	Z
451			477		
452			478		
453			479		
454			480		
455			481		
456			482		
457			483		
458			484		

Biological Example-1

5 Cyclic AMP assay in Stable cell line:

Chinese Hamster Ovary (CHO-K1) cells were stably transfected with human GPR119 and were maintained in Ham's F-12 complete medium containing 10% heat inactivated FBS (Sigma, UK). The cells were maintained under a selection pressure with 500 µg/ml G418 (GENETICIN). Stable clones were analyzed for functional cAMP response to OEA (oleoylethanolamide).

To estimate activation of GPR119 and induction of cAMP levels by GPR119 agonists, cells were serum starvation for 18-24 h, trypsinized and seeded in 96 well plates at

a density of 7500 cells/well. The cells were then treated with test compounds diluted in serum free Ham's F12 for 1 h at 37 °C. The cAMP levels were measured by using the cAMP femto kit (CisBio) by following the manufacturer's instructions. Following treatment with a test compound, the cells were lysed and cAMP levels were estimated by adding D2-labelled cAMP and europium-cryptate conjugated anti-cAMP antibody. Close proximity of D2 and cryptate results in FRET and the subsequent fluorescence that is measured at 665 and 620 nm. The FRET response is calculated as the ratio of fluorescence at 665 to fluorescence at 620 nm. The unlabelled cAMP produced as a result of GPR119 activation/agonism competes with the D2-cAMP leading to a decrease in the FRET signal. Thus the FRET signal is inversely proportional to the amount of cAMP produced by the treated cells. In a separate set of wells, known concentrations of cAMP were added in order to get a standard linear curve for extrapolation of the cAMP values in the unknown/test samples. Fluorescence was measured on BMG Labtech PHERAstar machine.

The concentration of compound required to stimulate a half-maximal response (EC_{50}) was determined using the GraphPad Prism software.

The compounds prepared were tested using the above assay procedure and the results obtained are given below. The EC_{50} (nM) values of the compounds are set forth in Table-3 wherein "A" refers to an EC_{50} value of less than 50 nM, "B" refers to an EC_{50} value in range of 50.01 to 250 nM and "C" refers to an EC_{50} value in range of 250.01 to 1000 nM.

Activity data has been given in Table-3 for representative compounds.

Table-3:

Compound (Example number)	EC_{50} Range
1, 2, 4, 5, 6, 8, 9, 11, 14, 22, 30, 35, 39, 40, 45, 46, 49, 51, 54, 56, 57, 63, 71, 74, 77, 80, 91, 98, 118, 120, 123, 126, 127, 132, 136, 141, 143, 168, 169, 171, 187, 190, 193	A
13, 18, 30, 42, 45, 48, 62, 66, 67, 70, 72, 76, 82, 92, 103, 108, 119, 126, 147, 153, 157, 182, 185	B
58, 72, 84, 88, 94, 99, 100, 107, 112, 113, 166, 192	C

Thus, certain compounds of the present invention are shown to have functional activity as agonists of GPR 119.

Biological Example-2

Oral Glucose Tolerance Test:

9-10 weeks old male C57 BL/6J mice were maintained on a regular chow diet. The day of the experiment mice were fasted for 16 h and then randomized in to groups (n=7-8) based on blood glucose and bodyweight to receive vehicle (80% PEG400, 10% Tween80, 10% Ethanol) or test compounds (at 10 mg/kg). Vehicle or test compounds were delivered via oral gavage at 10ml/kg volume. Thirty minutes later, the mice were dosed orally with a glucose bolus (3 g/kg) at 10 ml/kg volume. Blood glucose measurements were taken at 20, 40, 60 and 120 minutes after glucose administration by glucometer (CONTOUR TS, Bayer). Total AUC and Delta AUC were calculated by using graph pad prism (5.0).

Table-4:

Compound	% reduction in delta AUC at 10 mg/kg	% reduction in total AUC at 10 mg/kg
Example-63	28%	19%
Example-142	35%	20%

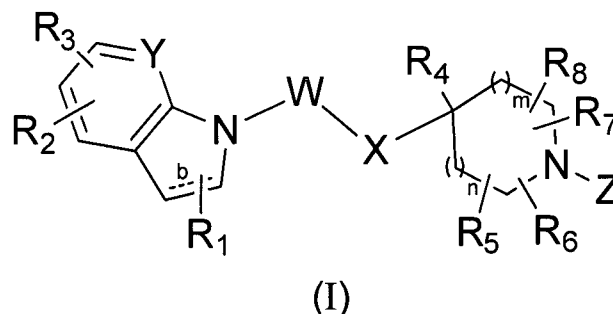
Thus, the compound of the present invention has been shown to decrease plasma glucose levels in vivo, indicating potential for use of the compounds of the present invention in the treatment of diabetes.

All patents, patent applications and publications cited in this application are hereby incorporated by reference in their entirety for all purposes to the same extent as if each individual patent, patent application or publication were so individually denoted.

Although certain embodiments and examples have been described in detail above, those having ordinary skill in the art will clearly understand that many modifications are possible in the embodiments and examples without departing from the teachings thereof. All such modifications are intended to be encompassed within the below claims of the invention.

CLAIMS

1. A compound of formula (I):



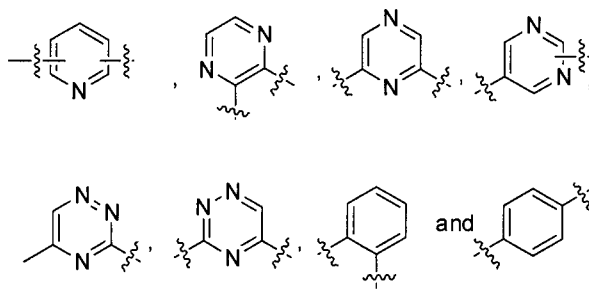
wherein,

5 $\overset{b}{\text{---}}$ is a single or double bond; provided that

when $\overset{b}{\text{---}}$ is a double bond, W is selected from group A and group B and

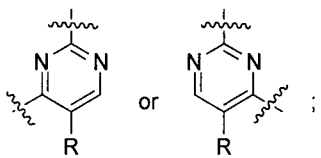
when $\overset{b}{\text{---}}$ is a single bond, W is selected from group A;

group A is selected from the group consisting of a 6-membered aromatic ring, wherein the 6-membered aromatic ring is selected from the group consisting of



10

a 5-membered heteroaryl, a cycloalkyl, a heterocyclyl, a bicyclic aryl and a bicyclic heteroaryl, and a member of group A may be optionally substituted with one or more R_{12} ; group B is selected from the group consisting of



wherein, R at each occurrence is selected from the group consisting of haloalkyl, alkoxy, cycloalkyl and NR_aR_b ;

R_1 , R_2 , are each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, halo, hydroxyalkyl, haloalkyl, $-\text{OR}_a$, $-\text{NR}_a\text{R}_b$, $-\text{C}(\text{O})\text{OR}_a$ and $-\text{C}(\text{O})\text{NR}_a\text{R}_b$;

or when 'b' is a single bond, R_1 may be oxo ($=\text{O}$);

R_3 is selected from the group consisting of $-\text{S}(\text{O})_p\text{R}_a$, $-\text{C}(\text{O})\text{OR}_a$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-(\text{CH}_2)_q\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{OR}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{S}(\text{O})_2\text{R}_b$, $-\text{CN}$, alkoxy, hydroxyalkyl, heterocyclyl and heteroaryl;

Y is N or C;

R_a and R_b are each independently selected from the group consisting of hydrogen, alkyl, halo, haloalkyl, hydroxy, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl, alkoxyalkyl, aryl, heteroaryl, arylalkyl, and heterocyclyl; or R_a and R_b may join together with the nitrogen atom to which they are attached to form a heterocyclic ring;

R_4 is selected from the group consisting of hydrogen, alkyl, halo, haloalkyl, cyano and $-\text{OR}_a$;

Z is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, cycloalkylalkyl, heterocyclylalkyl, heteroarylalkyl, arylalkyl, haloalkyl, hydroxyalkyl, $-(\text{CH}_2)_q\text{C}(\text{O})\text{OR}_a$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{OR}_c\text{R}_d\text{R}_e$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{R}_a$, $-\text{C}(\text{O})(\text{CH}_2)_q\text{NR}_a\text{R}_b$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{S}(\text{O})_2\text{R}_a$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{C}(\text{O})\text{CR}_c\text{R}_d\text{R}_e$ and $-(\text{CH}_2)_q\text{CR}_c\text{R}_d\text{R}_e$;

R_c , R_d and R_e are each independently selected from the group consisting of hydrogen, halogen, hydroxyl, alkyl, haloalkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, arylalkyl, and heterocyclyl; or R_c and R_d may join together with the carbon atom to which they are attached to form a 3 to 7 membered carbocyclic or heterocyclic ring;

R_5 , R_6 , R_7 , R_8 are each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, cyano, hydroxy, haloalkyl, alkoxy, $-\text{C}(\text{O})\text{OR}_a$, $-\text{OC}(\text{O})\text{R}_a$, $-\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{S}(\text{O})_p\text{R}_a$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, and -

$N(R_a)S(O)_2R_b$; wherein R_5 , R_6 , R_7 , and R_8 may be present on same or different carbon atom; or any two of R_4 , R_5 , R_6 , R_7 , R_8 and Z may join together to form a cycloalkyl or heterocyclyl ring; or any two of R_5 , R_6 , R_7 and R_8 , when they are attached to the same carbon, may together form oxo ($=O$);

- 5 X is selected from the group consisting of $-(CR_{10}R_{11})_qO(CR_{10}R_{11})_t-$, $(CR_{10}R_{11})_qS(O)_p(CR_{10}R_{11})_t-$ and $-(CR_{10}R_{11})_qNR_9(CR_{10}R_{11})_t-$;

R_9 is hydrogen or alkyl;

- R_{10} and R_{11} are each independently selected from the group consisting of hydrogen, halogen, alkyl and haloalkyl; or R_{10} and R_{11} may join together with the carbon atom to which
10 they are attached to form a 3 to 7 membered carbocyclic ring;

R_{12} at each occurrence is independently selected from hydrogen, alkyl, halogen, haloalkyl, alkoxy, cycloalkyl and NR_aR_b ;

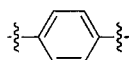
'm', 'n' and 'p' are each independently selected from 0, 1 or 2;

'q' is an integer ranging from 0 to 4, both inclusive;

- 15 't' is an integer ranging from 0 to 4, both inclusive;

with the proviso that when $\overset{b}{\text{---}}$ is double bond and

W is



, then X is not $-NH-$ or $-NHCH(R_{11})$;

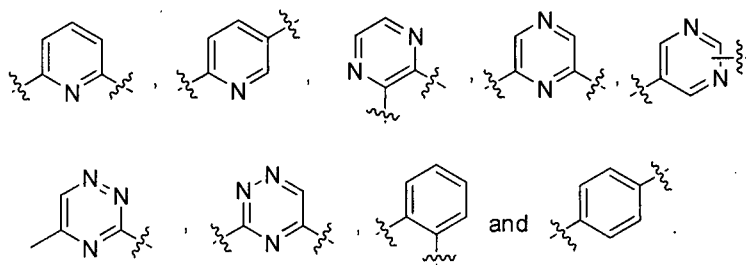
and

- 20 wherein, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, heterocyclyl, heterocyclic ring, alkoxy, hydroxyalkyl, haloalkyl, arylalkyl, heterocyclalkyl, heteroarylalkyl and carbocyclic ring wherever they occur may optionally be substituted with one or more substituents independently selected from hydroxy, halo, cyano, nitro, oxo ($=O$), thio ($=S$), alkyl, haloalkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, cycloalkylalkyl,
25 cycloalkenyl, heteroaryl, heterocyclic ring, heterocyclalkyl, heteroarylalkyl, $-C(O)OR^x$, $-C(O)R^x$, $-C(S)R^x$, $-C(O)NR^xR^y$, $-NR^xC(O)NR^yR^z$, $-N(R^x)S(O)R^y$, $-N(R^x)S(O)_2R^y$, $-NR^xR^y$, $-NR^xC(O)R^y$, $-NR^xC(S)R^y$, $-NR^xC(S)NR^yR^z$, $-S(O)NR^xR^y$, $-S(O)_2NR^xR^y$, $-OR^x$, $-OC(O)R^x$, -

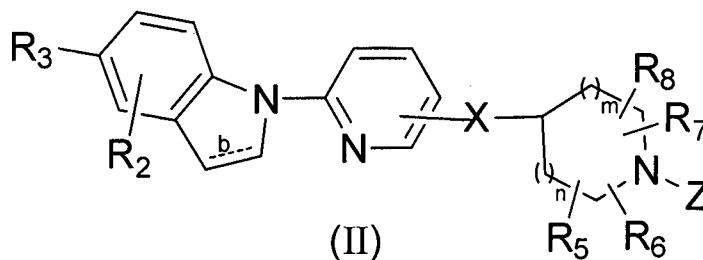
$\text{OC(O)NR}^x\text{R}^y$, $-\text{R}^x\text{C(O)OR}^y$, $-\text{R}^x\text{C(O)NR}^y\text{R}^z$, $-\text{R}^x\text{C(O)R}^y$, $-\text{SR}^x$, $-\text{S(O)R}^x$, and $-\text{S(O)}_2\text{R}^x$; wherein each occurrence of R^x , R^y and R^z are independently selected from hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, aryl, arylalkyl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic ring, heterocyclalkyl ring and heteroarylalkyl;

5 or pharmaceutically acceptable salt thereof.

2. The compound of claim 1, wherein $\overset{\text{b}}{\text{---}}$ is a double bond; and W is selected from 6-membered aromatic ring selected from the group consisting of



10 3. The compound of claim 1, having the Formula (II):



or pharmaceutically acceptable salt thereof;

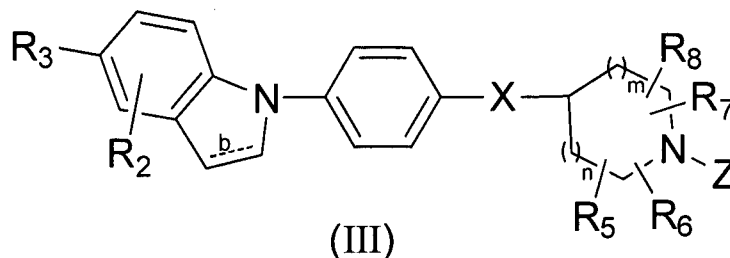
wherein,

$\overset{\text{b}}{\text{---}}$ is a single or double bond; and X , Z , R_2 , R_3 , R_5 , R_6 , R_7 , R_8 , 'n' and 'm' are as

15 defined herein above.

4. The compound of claim 1, having the Formula (III):

171



or pharmaceutically acceptable salt thereof;

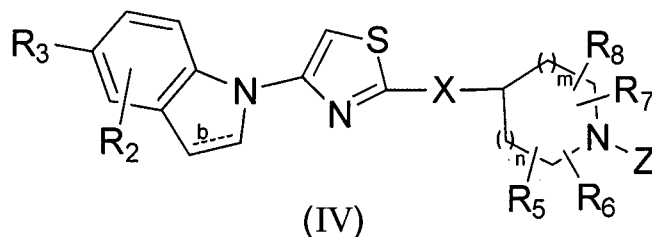
wherein,

$\overset{\text{b}}{\text{---}}$ is a single or double bond;

- 5 R_3 is selected from the group consisting of $-\text{S}(\text{O})_p\text{R}_a$, $-\text{C}(\text{O})\text{OR}_a$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-(\text{CH}_2)_q\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{OR}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{S}(\text{O})_2\text{R}_b$, hydroxyalkyl and heterocyclyl; and

X , Z , R_2 , R_5 , R_6 , R_7 , R_8 , 'n' and 'm' are as defined herein in claim 1.

5. The compound of claim 1, having the Formula (IV):

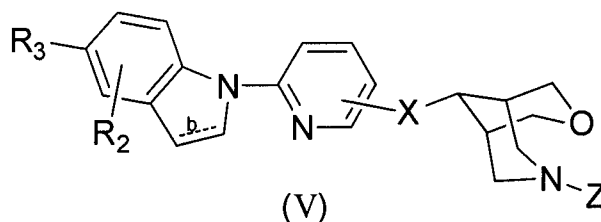


or pharmaceutically acceptable salt thereof;

wherein,

$\overset{\text{b}}{\text{---}}$ is a single or double bond; X , Z , R_2 , R_3 , R_5 , R_6 , R_7 , R_8 , 'n' and 'm' are as defined herein in claim 1.

- 15 6. The compound of claim 1, having the Formula (V):



or pharmaceutically acceptable salt thereof;

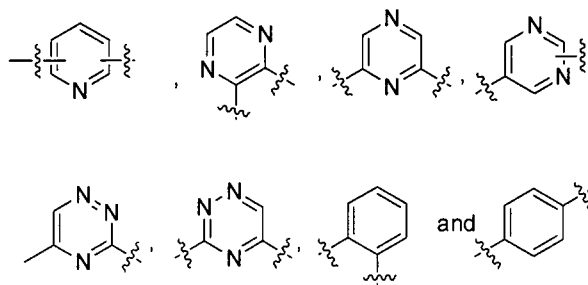
wherein,

$\overset{\text{b}}{\text{---}}$ is a single or double bond; X, Z, R₂ and R₃ are as defined herein in claim 1.

7. The compound of claim 1, wherein $\overset{\text{b}}{\text{---}}$ is double bond.

8. The compound of claim 1, wherein W is a 5-membered heteroaryl, or a 6-

5 membered aromatic ring selected from the group consisting of:



9. The compound of claim 1, wherein R₁ is hydrogen, alkyl, cyano, halo, cycloalkyl, heterocyclyl, aryl or heteroaryl.

10. The compound of claim 1, wherein R₂ is hydrogen, halogen or alkyl.

10 11. The compound of claim 1, wherein R₃ is hydroxyalkyl, -C(O)OR_a,
-S(O)_pR_a, -C(O)NR_aR_b, -N(R_a)C(O)R_b, -CH₂N(R_a)C(O)R_b, -N(R_a)C(O)OR_b,
N(R_a)C(O)NR_aR_b, -S(O)₂NR_aR_b, -N(R_a)S(O)₂R_b, heterocyclyl; wherein R_a and R_b are
each independently a hydrogen, alkyl, haloalkyl, cycloalkyl, hydroxyalkyl, aryl,
heteroaryl or heterocyclyl; or R_a and R_b may join together with the nitrogen atom to
15 which they are attached to form a heterocyclic ring.

12. The compound of claim 1, wherein R₃ is substituted or unsubstituted heteroaryl or heterocyclyl.

13. The compound of claim 12, wherein heteroaryl is oxazole, oxadiazole, triazole or tetrazole.

20 14. The compound of claim 12, wherein heterocyclyl is pyrrolidine, pyrrolidine-2-one or oxazolidin-2-one.

15. The compound of claim 12, 13 or 14, wherein substituent(s) is alkyl.

16. The compound of claim 1, wherein X is -(CR₁₀R₁₁)_qO(CR₁₀R₁₁)_t- or

$-(\text{CR}_{10}\text{R}_{11})_q\text{NR}_9(\text{CR}_{10}\text{R}_{11})_t$; 'q' is 0 or 1; 't' is 0 or 1; and each of R_{10} and R_{11} are hydrogen.

17. The compound of claim 1, wherein Z is hydrogen, alkyl, haloalkyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, heterocyclalkyl, heteroarylalkyl, arylalkyl, hydroxyalkyl, $-\text{C}(\text{O})\text{OR}_a$, $-\text{C}(\text{O})\text{R}_a$, $-\text{C}(\text{O})\text{CR}_c\text{R}_d\text{R}_e$, $-(\text{CH}_2)_q\text{CR}_c\text{R}_d\text{R}_e$, $-\text{S}(\text{O})_2\text{R}_a$ or $-\text{S}(\text{O})_2\text{NR}_a\text{R}_b$ wherein R_a , R_b , R_c , R_d and R_e are each independently a hydrogen, alkyl, haloalkyl, cycloalkyl, hydroxyalkyl, aryl, heteroaryl, arylalkyl, and heterocyclyl; or R_a and R_b may join together with the nitrogen atom to which they are attached to form a heterocyclic ring; or R_c and R_d may join together with the carbon atom to which they are attached to form a 3 to 7 membered carbocyclic or heterocyclic ring; 'm' is 0 or 1; and 'n' is 0 or 1.
18. The compound of claim 17, wherein the heteroaryl is pyrimidine, oxadiazole,
19. The compound of claim 17, wherein the heteroarylalkyl is oxadiazole-methyl,
20. The compound of claim 17, 18, or 19, wherein the aryl, heteroaryl, heterocyclyl, arylalkyl or heteroarylalkyl are substituted or unsubstituted, and the substituents are selected from the group consisting of halogen, alkyl, haloalkyl and cycloalkyl.
21. The compound of claim 1, wherein R_4 is hydrogen.
22. The compound of claim 1, wherein R_5 , R_6 , R_7 and R_8 are each independently hydrogen or halogen.
23. The compound of claim 1, wherein any two of R_4 , R_5 , R_6 , R_7 , R_8 and Z are joined together to form a cycloalkyl or heterocyclyl ring.
24. The compound of claim 1, wherein $\overset{\text{b}}{\text{---}}$ is a single or double bond; W is selected from group A as defined in claim 1, or a 5-membered heteroaryl; R_2 is hydrogen or halogen; R_3 is $-\text{S}(\text{O})_2\text{R}_a$, $-\text{C}(\text{O})\text{NR}_a\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{R}_b$, $-\text{N}(\text{R}_a)\text{C}(\text{O})\text{OR}_b$, heterocyclyl or heteroaryl, wherein R_a and R_b are each independently a hydrogen, alkyl; X is $-\text{O}-$ or $-\text{NH}-$; Z is alkyl, haloalkyl, heteroaryl, heterocyclyl, $-\text{C}(\text{O})\text{Oalkyl}$, $-\text{C}(\text{O})\text{CR}_c\text{R}_d\text{R}_e$, or $-(\text{CH}_2)_q\text{CR}_c\text{R}_d\text{R}_e$; R_5 , R_6 , R_7 and R_8 are hydrogen or halogen, or any two of R_4 , R_5 , R_6 , R_7 , R_8 and Z may join together to form a cycloalkyl or heterocyclyl ring; R_c , R_d , and R_e are as defined in claim 1; 'm' is 1; and 'n' is 1.

25. The compound of claim 1, which is selected from:

tert-Butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

tert-Butyl-4-(4-(5-(methylsulfonyl)-1H-indol-1-yl)phenoxy)-piperidine-1-carboxylate;
3-Isopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole;

tert-Butyl-4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)methyl)piperidine-1-carboxylate;

1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)methoxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

3-Isopropyl-5-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)methyl)piperidin-1-yl)-1,2,4-oxadiazole;

tert-Butyl-4-((6-(5-((ethoxycarbonyl)amino)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Ethyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

tert-Butyl-4-((6-(5-(ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(ethylsulfonyl)-1H-indole;

2-Methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-2-ol;

1-(4-((6-(5-(Ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-methylpropan-2-ol;

1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

5-(Ethylsulfonyl)-1-(5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

tert-Butyl 4-((6-(5-(isopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

5 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(isopropylsulfonyl)-1H-indole;

5-(4-((6-(5-(Isopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3-methyl-1,2,4-oxadiazole;

10 *tert*-Butyl-4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide;

tert-Butyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carboxylate;

15 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

2-Methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-1-one;

20 (±)-*tert*-Butyl-3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidine-1-carboxylate;

(±)-1-(5-((1-(5-Ethylpyrimidin-2-yl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

(±)-5-(methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)benzyl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-1H-indole;

25 *tert*-Butyl-3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-azetidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)azetidin-3-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)benzyl)azetidin-3-yl)oxy)pyridin-2-yl)-1H-indole;

1-(5-((1-Isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

tert-Butyl-4-((6-(5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridin-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridine;

1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-pyrrolo[2,3-b]pyridine;

2, 2-Dimethyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-1-one;

5-(Methylsulfonyl)-1-(5-((1-neopentylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

tert-Butyl-4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)indoline;

3-Isopropyl-5-(4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)-piperidin-1-yl)-1,2,4-oxadiazole;

tert-Butyl-4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

tert-Butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)-methoxy)piperidine-1-carboxylate;

1-(5-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

tert-Butyl-4-((6-(5-(dimethylcarbamoyl)indolin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

tert-Butyl-4-(((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl)oxy)-methyl)piperidine-1-carboxylate;

tert-butyl 4-(((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)methyl)piperidine-1-carboxylate;

5 *tert*-Butyl-4-((6-(5-(methylsulfonyl)indolin-1-yl)pyridin-3-yl) methoxy) piperidine-1-carboxylate;

1-(5-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

10 (syn)-*tert*-Butyl-9-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane-7-carboxylate;

(anti) *tert*-Butyl- 9-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane-7-carboxylate;

syn 7-(5-Ethylpyrimidin-2-yl)-9-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane;

15 anti 7-(5-Ethylpyrimidin-2-yl)-9-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-3-oxa-7-azabicyclo[3.3.1]nonane;

tert-Butyl-4-((6-(5-cyano-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

tert-Butyl-4-((6-(5-(cyclopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

20 *N*-cyclopropyl-1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

tert-Butyl-4-((6-(5-(oxazol-2-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

25 *tert*-Butyl-4-((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

N-(1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carbonitrile;

2-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)oxazole;

tert-Butyl-4-((6-(5-(methylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)-oxy)piperidine-1-carboxylate;

5 *tert*-Butyl-4-((6-(5-(ethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

tert-Butyl-4-((6-(5-(isopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

10 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-methyl-1H-indole-5-carboxamide;

N-ethyl-1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-isopropyl-1H-indole-5-carboxamide;

15 *tert*-Butyl-4-(((6-(5-(methylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)-oxy)methyl)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)methoxy)pyridin-2-yl)-N-methyl-1H-indole-5-carboxamide;

20 1-(5-((1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-methyl-1H-indole-5-carboxamide;

tert-Butyl-4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Isopropyl 4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

25 (1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

Isopropyl 4-((6-(5-(isopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate;

Ethyl-4-((6-(5-(isopropylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

Isopropyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate;

5 Ethyl-4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

tert-Butyl-4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate;

10 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide;

trans(±)-*tert*-Butyl-3-fluoro-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

3-Ethyl-5-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidin-1-yl)methyl)-1,2,4-oxadiazole;

15 3-Isopropyl-5-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methyl)-1,2,4-oxadiazole;

1-(5-((1-(4-Fluorophenyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

20 1-(5-((1-(4-Fluorobenzyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-((4-Ethylloxazol-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-((4-Isopropylloxazol-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

25 3-Cyclopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole;

4-Cyclopropyl-2-((4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methyl)oxazole;

tert-Butyl-4-((6-(5-((2,2,2-trifluoroethyl)carbamoyl)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N-(2,2,2-trifluoroethyl)-1H-indole-5-carboxamide;

5 Isopropyl 4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Ethyl 4-((6-(5-((2-hydroxyethyl)carbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

10 *tert*-Butyl-4-((6-(7-fluoro-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

3-Methyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidin-1-yl)-1, 2, 4-oxadiazole;

Methyl-1-(5-((1-(*tert*-butoxycarbonyl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate;

15 *tert*-Butyl-4-((6-(5-(hydroxymethyl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine -1-carboxylate;

Methyl-1-(5-((1-(5-ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indole-5-carboxylate;

20 (1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl) methanol;

tert-Butyl-4-((6-(5-(isobutyramido methyl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate;

N-((1-(5-((1-(5-ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl) methyl) isobutyramide;

25 *tert*-Butyl-4-((6-(5-(3-isopropyl-1, 2, 4-oxadiazol-5-yl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate;

5-(1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl)-3-isopropyl-1, 2, 4-oxadiazole;

Isopropyl 4-((6-(5-(3-isopropyl-1, 2, 4-oxadiazol-5-yl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate;

tert-Butyl-4-((6-(5-(3-methyl-1, 2, 4-oxadiazol-5-yl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate;

5 5-(1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-1H-indol-5-yl)-3-methyl-1, 2, 4-oxadiazole;

tert-Butyl- 4-((6-(5-(pyrrolidin-1-yl)-1H-indol-1-yl) pyridin-3-yl) oxy) piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) pyridin-2-yl)-5-(pyrrolidin-1-yl)-1H-indole;

10 1-(5-(((1-(5-Ethylpyrimidin-2-yl) piperidin-4-yl) oxy) methyl) pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

Ethyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carboxylate;

15 Isopropyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidine-1-carboxylate;

2-Methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl) propan-2-ol;

1-(5-(((1-(2-Fluoro-2-methylpropyl) piperidin-4-yl) oxy) methyl) pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

20 3-Isopropyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl)-1, 2, 4-oxadiazole;

3-Methyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl)-1, 2, 4-oxadiazole;

25 1-(5-(((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-5-(methylsulfonyl)indoline;

tert-Butyl-4-((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

3-Isopropyl-5-(4-((6-(5-(methylsulfonyl) indolin-1-yl) pyridin-3-yl) methoxy) piperidin-1-yl)-1, 2, 4-oxadiazole;

tert-Butyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-2-yl)oxy)-piperidine-1-carboxylate;

5 1-(6-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

N-(1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)pivalamide;

10 *N*-(1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)-6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-amine;

N-(1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)-6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-amine;

N-(1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)-6-(5-(methylsulfonyl)-indolin-1-yl)pyridin-3-amine;

15 *tert*-Butyl-4-(((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)-methyl)piperidine-1-carboxylate;

N-(1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide;

20 *N*-(1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)methoxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide;

tert-Butyl- 4-((6-(5-isobutyramidoindolin-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

Isopropyl 4-(((6-(5-isobutyramido-1H-indol-1-yl)pyridin-3-yl)oxy)methyl) piperidine-1-carboxylate;

25 *N*-(1-(5-((1-isobutyrylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide;

2-Chloro-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone;

N-(1-(5-((1-(2,2,2-trifluoroacetyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)isobutyramide;

tert-Butyl-4-((6-(5-(cyclopropanecarboxamido)-1H-indol-1-yl)pyridine-3-yl)oxy)piperidine-1-carboxylate;

tert-Butyl-4-((6-(5-((isopropoxycarbonyl)amino)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate;

5 Isopropyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

tert-Butyl- 4-((6-(5-(N-methylisobutyramido)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

10 Isopropyl (1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

N-(1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)-*N*-methylisobutyramide;

tert-Butyl-4-((6-(5-(isopropylcarbamoyl)indolin-1-yl)pyridin-3-yl)-oxy)piperidine-1-carboxylate;

15 Isopropyl (1-(5-((1-(3-methyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

tert-Butyl-4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)methyl)amino)piperidine-1-carboxylate;

20 1-(5-Ethylpyrimidin-2-yl)-*N*-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)methyl)piperidin-4-amine;

Ethyl (1-(5-((1-(3-methyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

Ethyl (1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

25 Ethyl (1-(5-((1-(3-ethyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

Isopropyl (1-(5-((1-(3-ethyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

3-Ethyl-5-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole;

5-(4-((6-(5-(ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3-methyl-1,2,4-oxadiazole;

5 3-ethyl-5-(4-((6-(5-(ethylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,2,4-oxadiazole;

1-(5-((1-(3-Ethyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

10 1-(5-((1-(3-Isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)-pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

Ethyl (1-(5-((1-(3-cyclopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)carbamate;

N-(2-hydroxyethyl)-1-(5-((1-(3-isopropyl-1,2,4-oxadiazol-5-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

15 (±)-1-(5-((1-(5-Ethylpyrimidin-2-yl)pyrrolidin-3-yl)oxy)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide;

(±)-3-Ethyl-5-(3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)-1,2,4-oxadiazole;

20 5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)benzyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

tert-Butyl-4-((6-(5-methoxy-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

(±)-3-Isopropyl-5-(3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)-1,2,4-oxadiazole;

25 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-methoxy-1H-indole;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-methoxy-1H-pyrrolo[2,3-b]pyridine;

(±)-3-Ethyl-5-((3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)methyl)-1,2,4-oxadiazole;

(±)-3-Isopropyl-5-((3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)pyrrolidin-1-yl)methyl)-1,2,4-oxadiazole;

5 3-Isopropyl-5-((3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)azetidin-1-yl)methyl)-1,2,4-oxadiazole;

3-Ethyl-5-((3-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)azetidin-1-yl)methyl)-1,2,4-oxadiazole;

10 1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-N-(2-hydroxyethyl)-1H-indole-5-carboxamide;

cis (±)-*tert*-Butyl-3-fluoro-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)-pyridin-3-yl)oxy)piperidine-1-carboxylate;

cis (±) (1-(5-((1-(5-Ethylpyrimidin-2-yl)-3-fluoropiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

15 *tert*-Butyl-4-((6-(5-(2-oxooxazolidin-3-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Isopropyl 4-((6-(5-(2-oxooxazolidin-3-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

20 *tert*-Butyl- 4-((6-(3-methyl-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-3-methyl-5-(methylsulfonyl)-1H-indole;

Isopropyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

25 Isopropyl 4-((6-(7-fluoro-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-7-fluoro-5-(methylsulfonyl)-1H-indole;

2,2,2-Trifluoro-1-(4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone;

tert-Butyl-4-((5-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-2-yl)oxy)-piperidine-1-carboxylate;

5 1-(6-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-3-yl)-5-(methylsulfonyl)-1H-indole;

4-(((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)(1-(trifluoromethyl)cyclopropyl)methanone;

10 3-Isopropyl-5-(4-((5-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-2-yl)oxy) piperidin-1-yl)-1,2,4-oxadiazole;

5-(4-(((6-(7-Fluoro-5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3-isopropyl-1,2,4-oxadiazole;

tert-Butyl-4-(((6-(5-(2-oxopyrrolidin-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy) piperidine-1-carboxylate;

15 1-(1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)pyrrolidin-2-one;

tert-Butyl-4-(((6-(5-cyano-7-fluoro-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

20 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-7-fluoro-1H-indole-5-carbonitrile;

Ethyl 4-(((6-(5-(2-oxopyrrolidin-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

tert-Butyl-4-(((6-(5-(cyclopropylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

25 5-(Cyclopropylsulfonyl)-1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

Ethyl-4-(((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

tert-Butyl-4-((6-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Ethyl-4-((6-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidine-1-carboxylate;

5 Ethyl (1-(5-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(methyl)carbamate;

tert-Butyl 4-((6-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

10 1-(5-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(1H-1,2,4-triazol-1-yl)-1H-indole;

Isopropyl 4-((6-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Ethyl-4-((6-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

15 5-(methylsulfonyl)-1-(5-((1-((1-(trifluoromethyl)cyclopropyl)methyl)-piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

3-(1-(5-((1-(4-Ethylphenyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)oxazolidin-2-one;

20 5-(Methylsulfonyl)-1-(5-((1-(4-(trifluoromethyl)phenyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

1-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidin-1-yl)-2-(pyrrolidin-1-yl)ethanone;

1-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidin-1-yl)-2-(piperidin-1-yl)ethanone;

25 1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-piperidin-1-yl)-2-morpholinoethanone;

1-(4-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)phenyl)-5-(methylsulfonyl)-1H-indole;

1-(4-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)phenyl)-5-(methylsulfonyl)indoline;

tert-butyl 4-((2-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-4-yl)methoxy)piperidine-1-carboxylate;

5 1-(4-(((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)methyl)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

5-(methylsulfonyl)-1-(5-((1-(2,2,2-trifluoroethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;

10 2-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1-(pyrrolidin-1-yl)ethanone;

2-Cyclopentyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone;

tert-Butyl-4-((4-(5-(methylsulfonyl)-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate;

15 *tert*-Butyl-4-(((4-(5-(methylsulfonyl)-1H-indol-1-yl)thiazol-2-yl)oxy)methyl)piperidine-1-carboxylate;

2-((1-(5-Ethylpyrimidin-2-yl)piperidin-4-yl)oxy)-4-(5-(methylsulfonyl)-1H-indol-1-yl)thiazole;

20 4-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)-2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazole;

tert-Butyl-4-((4-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate;

tert-Butyl-4-((4-(5-((ethoxycarbonyl)amino)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate;

25 *tert*-Butyl-4-((4-(5-((isopropoxycarbonyl)amino)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate;

Ethyl (1-(2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-yl)carbamate;

Isopropyl (1-(2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)thiazol-4-yl)-1H-indol-5-yl)carbamate;

5-(4-((4-(5-(1H-tetrazol-1-yl)-1H-indol-1-yl)thiazol-2-yl)oxy)-piperidin-1-yl)-3-isopropyl-1,2,4-oxadiazole;

5 *tert*-Butyl 4-((4-(7-fluoro-5-(methylsulfonyl)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate;

tert-Butyl-4-((4-(5-(methylsulfonyl)indolin-1-yl)thiazol-2-yl)oxy)-piperidine-1-carboxylate;

10 2-((1-(5-ethylpyrimidin-2-yl)piperidin-4-yl)oxy)-4-(5-(methylsulfonyl)indolin-1-yl)thiazole;

Isopropyl 4-((4-(5-(methylsulfonyl)indolin-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate;

tert-Butyl- 4-((4-(5-(1H-1,2,4-triazol-1-yl)-1H-indol-1-yl)thiazol-2-yl)oxy)piperidine-1-carboxylate;

15 Cyclobutyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;

Cyclopentyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;

20 Cyclohexyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;

1-(5-((1-(2,2-Difluoropropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-((1-Fluorocyclopentyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

25 1-(5-((1-((1-Fluorocyclobutyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

- 1-(5-((1-((5-Fluoropyridin-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
- 1-(Furan-2-yl)-2-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone;
- 5 3-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-6-((1-(trifluoromethyl)cyclopropyl)methyl)-6-azabicyclo[3.1.1]heptanes;
- 5-(Methylsulfonyl)-1-(5-((8-(2,2,2-trifluoroethyl)-8-azabicyclo[3.2.1]octan-3-yl)oxy)pyridin-2-yl)-1H-indole;
- (4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)(pyrrolidin-10 1-yl)methanone;
- N,N-Diethyl-4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxamide;
- 5-(Methylsulfonyl)-1-(5-((1-(4,4,4-trifluoro-2-methylbutan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;
- 15 1-(5-((1-(1,1-Difluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
- 1,3-Difluoropropan-2-yl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;
- 3-Fluoro-3-methyl-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)butan-1-one;
- 20 3-Fluoro-1-(5-((1-isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
- 1-(5-((1-Isobutyl-2,6-dimethylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
- 25 5-(Methylsulfonyl)-1-(5-((1-(2-(pyrrolidin-1-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;
- 1-(5-((1-Isopropylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
- 1-(5-((1-(2-Methoxyethyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

- 5-(Methylsulfonyl)-1-(5-((1-propylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;
3-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)butan-2-one;
1-(5-((1-Cyclobutylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
5 1,1,1-Trifluoro-3-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)propan-2-one;
5-(Methylsulfonyl)-1-(5-((1-(pentan-3-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole;
Isobutyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;
10 2-Methoxyethyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;
Neopentyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;
Cyclohexyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-
15 carboxylate;
Cyclobutyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;
2-(Dimethylamino)-1-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone;
20 Cyclopentyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;
Furan-2-yl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;
1-(5-((1-(5-Ethylpyrazin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-
25 indole;
3-(1-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethyl)-6-oxa-3-azabicyclo[3.1.1]heptanes;
6-(1-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethyl)-2-oxa-6-azaspiro[3.3]heptanes;

4-(2-(4-((6-(5-(Methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethyl)morpholine;

N,N-Dimethyl-2-(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)acetamide;

5 Cyclohexyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;

Cyclopropyl(4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;

1-(5-((1-Cyclopentylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

10 1-(5-((1-Cyclohexylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-(Cyclopropylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-(Cyclohexylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

15 1-(5-((1-(Cyclobutylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-(4-Chlorobenzyl)piperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

1-(5-((1-Benzylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;

20 1-(5-((1-Cyclopropylpiperidin-4-yl)oxy)pyridin-2-yl)-5-(methylsulfonyl)-1H-indole;
Cyclopropyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

2-Fluoroethyl 4-((6-(5-(methylsulfonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

25 Azetidin-1-yl(1-(5-((1-(cyclobutylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(1,1-difluoroethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-((1-fluorocyclopentyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-((1-fluorocyclobutyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Azetidin-1-yl(1-(5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-((5-fluoropyridin-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 1-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-(furan-2-yl)ethanone;

1,3-Difluoropropan-2-yl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Azetidin-1-yl(1-(5-((1-(pyrrolidine-1-carbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-N,N-diethylpiperidine-1-carboxamide;

Azetidin-1-yl(1-(5-((1-(4,4,4-trifluoro-2-methylbutan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

20 Azetidin-1-yl(1-(5-((1-(1,1-difluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

1-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3,3-difluorobutan-1-one;

Azetidin-1-yl(1-(5-((1-isobutyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

25 Azetidin-1-yl(1-(5-((1-(2-(pyrrolidin-1-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-isopropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-propylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-cyclopropylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Azetidin-1-yl(1-(5-((1-cyclobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-cyclopentylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 Azetidin-1-yl(1-(5-((1-cyclohexylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(cyclohexylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(2-methoxyethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 2-Methoxyethyl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

3-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)butan-2-one;

20 3-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,1,1-trifluoropropan-2-one

Azetidin-1-yl(1-(5-((1-(cyclopropylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(cyclobutylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

25 Azetidin-1-yl(1-(5-((1-(pentan-3-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Neopentyl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Cyclohexyl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Cyclopropyl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

5 2-Fluoroethyl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Azetidin-1-yl(1-(5-((1-(cyclopropanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 Azetidin-1-yl(1-(5-((1-(cyclobutanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(cyclopentanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 Azetidin-1-yl(1-(5-((1-(2-morpholinoethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

2-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-N,N-dimethylacetamide;

20 Azetidin-1-yl(1-(5-((1-(morpholinomethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

(1-(5-((1-(1-(6-Oxa-3-azabicyclo[3.1.1]heptan-3-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(azetidin-1-yl)methanone;

(1-(5-((1-(1-(2-Oxa-6-azaspiro[3.3]heptan-6-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(azetidin-1-yl)methanone;

25 Azetidin-1-yl(1-(5-((1-((1S,4R)-bicyclo[2.2.1]heptan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(isopropylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(cyclopropylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(methylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Azetidin-1-yl(1-(5-((1-(ethylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-(3,3,3-trifluoro-2,2-dimethylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 Azetidin-1-yl(1-(5-((1-((1-(trifluoromethyl)cyclopropyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-((1-(trifluoromethyl)cyclobutyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Azetidin-1-yl(1-(5-((1-isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 Azetidin-1-yl(1-(5-((1-isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

(1-(5-((1-(1,1-Difluoroethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

20 (1-(5-((1-((1-Fluorocyclopentyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

(1-(5-((1-((1-Fluorocyclobutyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

(1-(5-((1-(2-Fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

25 (1-(5-((1-((5-Fluoropyrimidin-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

2-(Furan-2-yl)-1-(4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)ethanone;

1,3-Difluoropropan-2-yl 4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Pyrrolidin-1-yl(4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)methanone;

5 N,N-Diethyl-4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxamide;

Pyrrolidin-1-yl(1-(5-((1-(4,4,4-trifluoro-2-methylbutan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 (1-(5-((1-(1,1-Difluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

3,3-Difluoro-1-(4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)butan-1-one;

(1-(5-((1-Isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

15 Pyrrolidin-1-yl(1-(5-((1-(2-(pyrrolidin-1-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

(1-(5-((1-Isopropylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

(1-(5-((1-Cyclopropylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

20 (1-(5-((1-Cyclobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

(1-(5-((1-Cyclopentylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

25 (1-(5-((1-Cyclohexylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

(1-(5-((1-(Cyclohexylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

(1-(5-((1-(2-Methoxyethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(cyclobutylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Pyrrolidin -1-yl(1-(5-((1-(1,1-difluoroethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-((1-fluorocyclopentyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 Pyrrolidin -1-yl(1-(5-((1-((1-fluorocyclobutyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(2-fluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-((5-fluoropyridin-2-yl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 1-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-2-(furan-2-yl)ethanone;

1,3-Difluoropropan-2-yl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

20 Pyrrolidin -1-yl(1-(5-((1-(pyrrolidine-1-carbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)-N,N-diethylpiperidine-1-carboxamide;

Pyrrolidin -1-yl(1-(5-((1-(4,4,4-trifluoro-2-methylbutan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

25 Pyrrolidin -1-yl(1-(5-((1-(1,1-difluoro-2-methylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

1-(4-((6-(5-(Azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-3,3-difluorobutan-1-one;

Pyrrolidin -1-yl(1-(5-((1-isobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(2-(pyrrolidin-1-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Pyrrolidin -1-yl(1-(5-((1-isopropylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-propylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 Pyrrolidin -1-yl(1-(5-((1-cyclopropylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-cyclobutylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-cyclopentylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 Pyrrolidin -1-yl(1-(5-((1-cyclohexylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(cyclohexylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

20 Pyrrolidin -1-yl(1-(5-((1-(2-methoxyethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

2-Methoxyethyl 4-((6-(5-(azetidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

3-(4-((6-(5-(Pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)butan-2-one;

25 3-(4-((6-(5-(Pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-1,1,1-trifluoropropan-2-one;

Pyrrolidin -1-yl(1-(5-((1-(cyclopropylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(cyclobutylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(pentan-3-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Neopentyl 4-((6-(5-(pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Cyclohexyl 4-((6-(5-(pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

10 Cyclopropyl 4-((6-(5-(pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

2-Fluoroethyl 4-((6-(5-(pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Pyrrolidin -1-yl(1-(5-((1-(cyclopropanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 Pyrrolidin -1-yl(1-(5-((1-(cyclobutanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(cyclopentanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

20 Pyrrolidin -1-yl(1-(5-((1-(5-ethylpyrazin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin -1-yl(1-(5-((1-(2-morpholinoethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

2-(4-((6-(5-(Pyrrolidin -1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidin-1-yl)-N,N-dimethylacetamide;

25 Pyrrolidin -1-yl(1-(5-((1-(morpholinomethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

(1-(5-((1-(1-(6-Oxa-3-azabicyclo[3.1.1]heptan-3-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin -1-yl)methanone;

(1-(5-((1-(1-(2-Oxa-6-azaspiro[3.3]heptan-6-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)(pyrrolidin-1-yl)methanone;

Pyrrolidin-1-yl(1-(5-((1-((1S,4R)-bicyclo[2.2.1]heptan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

5 Pyrrolidin-1-yl(1-(5-((1-(isopropylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin-1-yl(1-(5-((1-(cyclopropylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

10 Pyrrolidin-1-yl(1-(5-((1-(methylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin-1-yl(1-(5-((1-(ethylsulfonyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin-1-yl(1-(5-((1-(3,3,3-trifluoro-2,2-dimethylpropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

15 Pyrrolidin-1-yl(1-(5-((1-((1-(trifluoromethyl)cyclopropyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

Pyrrolidin-1-yl(1-(5-((1-((1-(trifluoromethyl)cyclobutyl)methyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

20 Pyrrolidin-1-yl(1-(5-((1-isobutyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indol-5-yl)methanone;

2-Methoxyethyl 4-((6-(5-(pyrrolidine-1-carbonyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(1-(2-Oxa-6-azaspiro[3.3]heptan-6-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

25 1-(5-((1-(1-(6-Oxa-3-azabicyclo[3.1.1]heptan-3-yl)ethyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(2-(Dimethylamino)-2-oxoethyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

N,N-Dimethyl-1-(5-((1-(2-morpholinoethyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-(5-Ethylpyridin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

5 1-(5-((1-(5-Ethylpyridin-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Cyclopropanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

10 1-(5-((1-(Cyclobutanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Cyclohexanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Cyclopentanecarbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

15 1-(5-((1-(2-(Dimethylamino)acetyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Furan-2-carbonyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

20 Isobutyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

2-Methoxyethyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

2-Fluoroethyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

25 Neopentyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Cyclopropyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

Cyclohexyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)oxy)piperidine-1-carboxylate;

1-(5-((1-(2-Methoxyethyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

5 N,N-Dimethyl-1-(5-((1-propylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-Cyclobutylpiperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

10 1-(5-((1-Isopropylpiperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

N,N-Dimethyl-1-(5-((1-(3-oxobutan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-Cyclopentylpiperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

15 N,N-Dimethyl-1-(5-((1-(3,3,3-trifluoro-2-oxopropyl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-Cyclohexylpiperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

20 N,N-Dimethyl-1-(5-((1-phenethylpiperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-(Cyclopropylmethyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(4-Chlorobenzyl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

25 1-(5-((1-Benzylpiperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-Cyclopropylpiperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-((1S,4R)-Bicyclo[2.2.1]heptan-2-yl)piperidin-4-yl)oxy)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

N,N-Dimethyl-1-(5-((1-(pentan-3-yl)piperidin-4-yl)oxy)pyridin-2-yl)-1H-indole-5-carboxamide;

5 1-(5-((1-(1-(2-Oxa-6-azaspiro[3.3]heptan-6-yl)ethyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(1-(6-Oxa-3-azabicyclo[3.1.1]heptan-3-yl)ethyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

10 1-(5-((1-(2-(Dimethylamino)-2-oxoethyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

N,N-Dimethyl-1-(5-((1-(2-morpholinoethyl)piperidin-4-yl)amino)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-(5-Ethylpyridin-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

15 1-(5-((1-(5-Ethylpyridin-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Cyclopropanecarbonyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

20 1-(5-((1-(Cyclobutanecarbonyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Cyclohexanecarbonyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Cyclopentanecarbonyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

25 1-(5-((1-(2-(Dimethylamino)acetyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-(Furan-2-carbonyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

Isobutyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carbaminolate;

2-Methaminoethyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carbaminolate;

5 2-Fluoroethyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carbaminolate;

Neopentyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carbaminolate;

10 Cyclopropyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carbaminolate;

Cyclohexyl 4-((6-(5-(dimethylcarbamoyl)-1H-indol-1-yl)pyridin-3-yl)amino)piperidine-1-carbaminolate;

1-(5-((1-(2-Methaminoethyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

15 N,N-Dimethyl-1-(5-((1-propylpiperidin-4-yl)amino)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-Cyclobutylpiperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

20 1-(5-((1-Isopropylpiperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

N,N-Dimethyl-1-(5-((1-(3-oxobutan-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-Cyclopentylpiperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

25 N,N-Dimethyl-1-(5-((1-(3,3,3-trifluoro-2-oxopropyl)piperidin-4-yl)amino)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-Cyclohexylpiperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

N,N-Dimethyl-1-(5-((1-phenethylpiperidin-4-yl)amino)pyridin-2-yl)-1H-indole-5-carboxamide;

1-(5-((1-(Cyclopropylmethyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

5 1-(5-((1-(4-Chlorobenzyl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-Benzylpiperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

10 1-(5-((1-Cyclopropylpiperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide;

1-(5-((1-((1S,4R)-Bicyclo[2.2.1]heptan-2-yl)piperidin-4-yl)amino)pyridin-2-yl)-N,N-dimethyl-1H-indole-5-carboxamide and

N,N-Dimethyl-1-(5-((1-(pentan-3-yl)piperidin-4-yl)amino)pyridin-2-yl)-1H-indole-5-carboxamide

15 or pharmaceutically acceptable salt thereof.

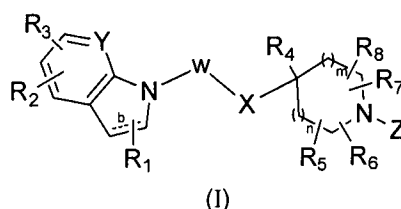
26. A pharmaceutical composition comprising one or more compounds of Formula (I) according to Claim 1, and one or more pharmaceutically acceptable excipients; wherein the pharmaceutically acceptable excipient is a carrier or a diluent.

27. The pharmaceutical composition of claim 26, further comprising at least
20 one additional pharmaceutical agent selected from the group consisting of an anti-obesity agent, anti diabetic agent, anti-hyperglycemic agents, anti-hyperinsulinemic agents, anti-retinopathic agents, anti-neuropathic agents, anti-nephropathic agents, anti-atherosclerotic agents, anti-ischemic agents, anti-hypertensive agents, anti-dyslipidemic agents, anti-hyperlipidemic agents, anti-hypertriglyceridemic agents, anti-
25 hypercholesterolemic agents, anti-restenotic agents, anti-pancreatic agents, anti-metabolic syndrome agents, lipid lowering agents, anti-lipodystrophy agents, anti-inflammatory agents, appetite suppressants, treatments for heart failure agents and treatment for peripheral arterial disease agents.

28. The pharmaceutical composition of claim 27, wherein said at least one additional pharmaceutical agent is an anti diabetic agent selected from the group consisting of insulin and insulin analogs, insulin secretagogues, insulin sensitizers, glucagon-like peptide-1 (GLP-1) receptor agonists including glucagon-like peptides and its analogues, SGLT2 inhibitors, insulin signaling agonists, RXR agonists, fatty acid oxidation inhibitors, beta-agonists, phosphodiesterase inhibitors, lipoxygenase inhibitors, dipeptidyl peptidase-IV (DPP4) inhibitors, PTP1B inhibitors, gluconeogenesis inhibitors, somatostatin and its analogs, antilipolytic agents; glucose transport stimulating agents, glucose synthase kinase inhibitors, galanin receptor agonists, chemokine receptor antagonist, glucokinase activators, GDIR agonists, GPR40 modulators and GPR119 modulators.
29. The pharmaceutical composition of claim 27, wherein said additional pharmaceutical agent is dipeptidyl peptidase-IV (DPP4) inhibitor.
30. The pharmaceutical composition of claim 27, wherein said at least one additional pharmaceutical agent is Metformin.
31. A method of treating and/or managing diseases or disorders, syndromes or conditions associated with the modulation of GPR119 receptor function comprising administering to a subject in need thereof, a therapeutically effective amount of a compound of claim 1 or a pharmaceutically acceptable salt thereof.
32. The method of claim 31, wherein the symptoms of a disease, disorder, syndrome or condition associated with the modulation of GPR119 receptor function is selected from the group consisting of type 2 diabetes, type 1 diabetes, hyperglycemia, impaired glucose tolerance, insulin resistance, hyperinsulinemia, wound healing, retinopathy, neuropathy, nephropathy, obesity, Metabolic Syndrome, lipodystrophy including HIV protease associated lipodystrophy, lipid disorders, hypertension, dyslipidemia, hyperlipidemia, hypertriglyceridemia, hypercholesterolemia, low HDL, high LDL, vascular restenosis, peripheral arterial disease, and its sequela selected from the group consisting of acute coronary syndrome, myocardial infarction, angina pectoris, peripheral vascular disease, intermittent claudication, myocardial ischemia, stroke and

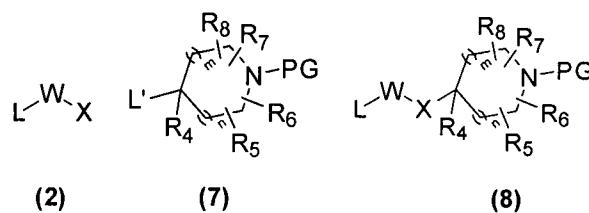
heart failure, inflammatory diseases, inflammatory bowel diseases, atherosclerosis and bone diseases.

33. A method for the treatment of metabolic or metabolic related diseases, disorders, syndromes or conditions comprising administering to a subject in need thereof, a therapeutically effective amount of the compound of Claim 1.
34. A process for the preparation of a compound of Formula (I):

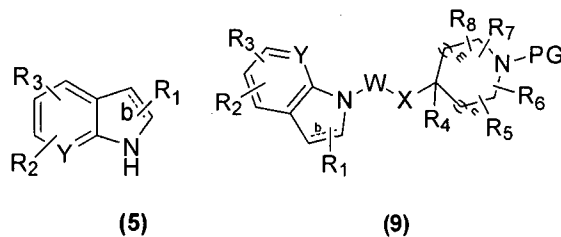


comprising,

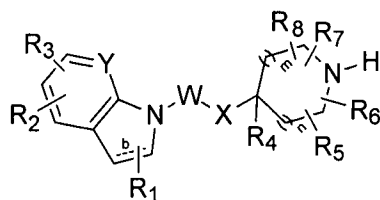
- e) reacting a compound of formula (2) where L is a leaving group, with a compound of formula (7), where L' is a leaving group PG is protecting group, in the presence of suitable base to give a compound of formula (8),



- f) treating the compound of formula (8) with a compound of formula (5) in the presence of palladium catalyst to give a compound of formula (9),

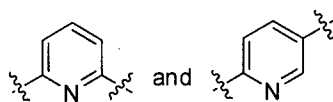


- g) deprotecting the compound of formula (9) with a suitable reagent to give a compound of formula (10), and



(10)

- h) coupling the compound of formula (10) with Z-L where L is a leaving group, to obtain the compound of formula (I).
36. The compound of claim 16, wherein X is $-(\text{CR}_{10}\text{R}_{11})_q\text{O}(\text{CR}_{10}\text{R}_{11})_t$; 'q' is 0 or 1; 't' is 0 or 1; and each of R₁₀ and R₁₁ are hydrogen.
37. The compound of claim 36, wherein X is -O-.
38. The compound of any of the claims 2, 3 or 6, wherein W is selected from



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/002814

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D401/12 C07D401/14 C07D413/14 C07D417/14 C07D471/04
C07D491/08 A61K31/444 A61K31/506 A61P3/04 A61P3/10
A61P9/00 A61P19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/119881 A1 (DAIICHI SANKYO CO LTD [JP]; HONDA TAKESHI; KAGECHIKA KATSUJI; KANEKO T) 21 October 2010 (2010-10-21) cited in the application paragraph [0175] - paragraph [0181]; claim 1	1-38
X,P	----- WO 2010/149685 A1 (BOEHRINGER INGELHEIM INT [DE]; NEUROCRINE BIOSCIENCES INC [US]; TRAN J) 29 December 2010 (2010-12-29) claims 1,12; example 10	1-38
X	----- WO 2010/095663 A1 (TAKEDA PHARMACEUTICAL [JP]; RIKIMARU KENTARO [JP]; IMOTO HIROSHI [US];) 26 August 2010 (2010-08-26) cited in the application claim 1	1-38
	-/--	

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

27 February 2012

Date of mailing of the international search report

02/05/2012

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Gettins, Marc

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/002814

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	& EP 2 399 914 A1 (TAKEDA PHARMACEUTICAL [JP]) 28 December 2011 (2011-12-28) paragraph [0057]; claims 1,13; examples 18-76 -----	11-38
A	WO 2010/128425 A1 (PFIZER [US]; DAROUT ETZER [US]; DENINNO MICHAEL PAUL [US]; FUTATSUGI K) 11 November 2010 (2010-11-11) cited in the application claims 1,21 -----	1-38
A,P	JP 2011 136942 A (KOWA CO) 14 July 2011 (2011-07-14) cited in the application claim 1 -----	1-38

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2011/002814

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
3, 6, 38(completely); 1, 2, 7-37(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 3, 6, 38(completely); 1, 2, 7-37(partially)

Compounds (I) and their use where W is a pyridine ring

2. claims: 1, 2, 7-37(all partially)

Compounds (I) and their use where W is a pyrimidine ring

3. claims: 1, 2, 7-37(all partially)

Compounds (I) and their use where W is a 1,2,4 triazine ring

4. claims: 4(completely); 1, 2, 7-37(partially)

Compounds (I) and their use where W is a phenyl ring

5. claims: 5(completely); 1, 2, 7-37(partially)

Compounds (I) and their use where W is a 5-membered heteroaryl, a cycloalkyl, a heterocyclyl, a bicyclic aryl and a bicyclic heteroaryl

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2011/002814

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010119881 A1	21-10-2010	TW 201039827 A WO 2010119881 A1	16-11-2010 21-10-2010
WO 2010149685 A1	29-12-2010	AR 077214 A1 EP 2445901 A1 TW 201113269 A US 2011021491 A1 WO 2010149685 A1	10-08-2011 02-05-2012 16-04-2011 27-01-2011 29-12-2010
WO 2010095663 A1	26-08-2010	EP 2399914 A1 US 2012028962 A1 WO 2010095663 A1	28-12-2011 02-02-2012 26-08-2010
WO 2010128425 A1	11-11-2010	AR 079389 A1 CA 2759843 A1 EP 2427450 A1 WO 2010128425 A1	25-01-2012 10-11-2010 14-03-2012 11-11-2010
JP 2011136942 A	14-07-2011	NONE	