(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 September 2009 (24.09.2009)

PCT

(10) International Publication Number
WO 2009/116090 A2

(51) International Patent Classification:
C07F 9/40 (2006.01)

(21) International Application Number:
PCT/IN2009/000184

(22) International Filing Date:
17 March 2009 (17.03.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
687/DEL/2008 18 March 2008 (18.03.2008) IN

(71) Applicant *(for all designated States except US)*: **PANACEA BIOTEC LIMITED** [IN/IN]; B-1 Extn./ A-27, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044 (IN).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **JAIN, Rajesh** [IN/IN]; B-1 Extn./ A-27, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044 (IN). **TREHAN, Sanjay** [IN/IN]; B-1 Extn./A-27, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044 (IN). **DAS, Jagattaran** [IN/IN]; B-1 Extn./A-27, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044 (IN). **KANWAR, Sandeep** [IN/IN]; B-1 Extn./ A-27, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044 (IN). **MAGADI, Sitaram, Kumar** [IN/IN]; B-1 Extn./ A-27, Mohan Co-operative Industrial Estate, New Delhi 110044 (IN).

(74) Agent: **GUPTA, Bhartee**; B-1 Extn./A-27, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi 110044 (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

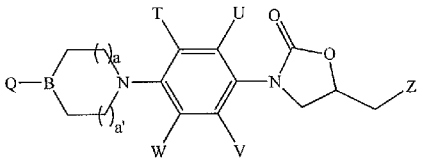
— *as to the identity of the inventor (Rule 4.17(i))*

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *of inventorship (Rule 4.17(iv))*

[Continued on next page]

(54) Title: NOVEL ANTIMICROBIALS



Formula I

(57) Abstract: The present invention relates to novel phenyl oxazolidinone compounds of Formula I, their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including R and S isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof. The invention also relates to the processes for the synthesis of novel compounds of Formula I, their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers, polymorphs, prodrugs, metabolites, salts or solvates thereof. The present invention also provides pharmaceutical compositions comprising novel compounds of Formula I and methods of treating or preventing conditions caused by microbial infections. The compounds of the present invention are effective against a number of aerobic and/or anaerobic Gram positive and/or Gram negative pathogens such as multi drug resistant Staphylococcus spp., Streptococcus spp., Enterococcus spp., Bacterioides spp., Clostridia spp., *H. influenza*, Moraxella Spp., as well as acid-fast organisms such as *Mycobacterium tuberculosis* and the like.

WO 2009/116090 A2

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

NOVEL ANTIMICROBIALS

Field of the invention

The present invention relates to novel phenyl oxazolidinone compounds of Formula I, their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof. The invention also relates to the processes for the synthesis of novel compounds of Formula I, their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers, polymorphs, prodrugs, metabolites, salts or solvates thereof. The present invention also provides pharmaceutical compositions comprising novel compounds of Formula I and methods of treating or preventing conditions caused by microbial infections. The compounds of the present invention are effective against a number of aerobic and/or anaerobic Gram positive and/or Gram negative pathogens such as multi drug resistant Staphylococcus spp., Streptococcus spp., Enterococcus spp., Bacterioides spp., Clostridia spp., *H. influenza*, Moraxella Spp., as well as acid-fast organisms such as *Mycobacterium tuberculosis* and the like.

Background of the invention

Antibacterial resistance has increased alarmingly in the recent years resulting in bacterial strains against which currently available antimicrobial agents are ineffective. In particular, Gram positive bacteria are presenting a formidable treatment problem. Methicillin Resistant *Staphylococcus aureus* (MRSA), Vancomycin Resistant *Enterococci* (VRE) and Glycopeptide Resistant *Staphylococcus aureus* (GISA) are no longer objects of scientific curiosity but a life threatening proposition that is confronting physicians all over the world. The 'super-bugs' are here to stay and in addition to the several measures to control the spread of drug resistance, a concerted effort is still needed to develop new antibiotics to control life threatening bacterial infections. This growing multidrug resistance has recently rekindled interest in the search for new structural class of antibiotics that kill or inhibit the growth of these bacteria. [See: *Chemical Reviews*, **2005**, *105* (2), 391-774].

Oxazolidinones are a class of antibacterial agents with a unique mechanism of inhibiting bacterial protein synthesis. They inhibit the formation of ribosomal initiation complex involving 30S and 50S ribosomes leading to prevention of initiation complex formation at

the stage of protein synthesis. Due to their unique mechanism of action, these compounds are active against pathogens resistant to other clinically useful antibiotics.

Several patents and publications disclose oxazolidinones as antimicrobial agents. For review, See: *Bioorg. Med. Chem.* **2006**, *14*, 4227 and the references cited therein. Recent literature publications for example, *Biorg. Med. Chem. Lett.* **2009**, *19*, 550; *Biorg. Med. Chem. Lett.* **2008**, *18*, 5815; *Biorg. Med. Chem. Lett.* **2008**, *18*, 5150; *Biorg. Med. Chem.* **2006**, *40*, 8032; *Biorg. Med. Chem. Lett.* **2005**, *15*, 337 disclose oxazolidinone compounds having antibacterial activity useful as antimicrobial agents.

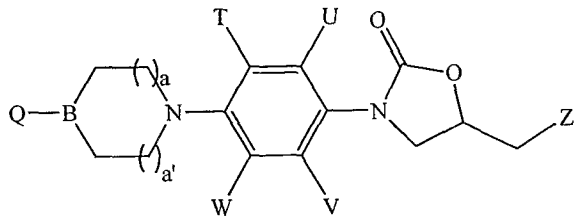
PCT publications bearing numbers WO 93/09103, WO 00/29396, WO 01/94342, WO 02/81469, WO 02/81470, WO 02/02095W0 03/072553, WO 03/006447, WO 03/07870, WO 03/08389, WO 03/97059, WO 04/056817, WO 04/056818, WO 04/14392, WO 04/009587, WO 04/018439, WO 04/087697, WO 04/089944, WO 04/045616, WO 05/058886, WO 05/003087, WO 05/082899, WO 05/082897, WO 05/116024, WO 05/116021, WO 05/082900 and WO 06/043121 and US patents having numbers US 6,689,779, US 5,565,571, US 5,801,246, US 5,756,732, US 5,654,435 and US 5,654,428 disclose oxazolidinone compounds having antibacterial activity useful as antimicrobial agents. Some recent publications such as WO 07/114326, US 07/0155798, WO 07/040326, WO 07/095784, WO 07/000432, WO 07/004037, WO 07/093904, WO 08/127025, WO 08/140220, WO 08/143649, WO 08/127300 and WO 09/001192 disclose phenyl oxazolidinone derivatives to be useful as antibacterial agents. WO 06/109056, WO 06/035283, WO 03/072553, WO 03/064415 disclose heterobicyclic substituted phenyl oxazolidinones useful as antibacterial agents. WO 96/35691 and WO 00/073301 disclose bicyclic oxazolidinones as antibacterial agents. WO 02/064547 discloses pyridoarylphenyl oxazolidinones as antibacterial agents. WO 04/033451, WO 04/089943, WO 05/005422 and WO 05/005399 disclose bicyclo[3.1.0]hexyl-phenyl-oxazolidinone derivatives useful for treating bacterial infections. Some oxazolidinones having phosphates as one of the functionality are disclosed in PCT applications WO 08/090570, WO 07/138381, WO 02/096918 and WO 02/096917.

Linezolid (sold under the trade name Zyvox®), the first oxazolidinone to receive regulatory approval, has become an important clinical option in the treatment of serious Gram-positive bacterial infections, including those caused by multidrug resistant pathogens such as MRSA and VRE (see WO 95/07272). Inspite of its high potential as an antibiotic and its unique mode of action, no other molecule from oxazolidinone class, except for linezolid, could

make it to the clinic. Moreover, development of resistance to an antibiotic is inevitable, and linezolid has been no exception. See: *Ann. Pharmacother.*, 2003, *37*, 769–774. Further, due to myelosuppression, linezolid is not suitable for long duration therapy, although there are cases where patients receiving linezolid for more than two years are without serious side effects. See: *Expert Opin. Ther. Patents* 2004, *14*, 1309–1328. Linezolid and its analogs (first generation oxazolidinones) are generally limited in their antimicrobial spectrum to Gram-positive pathogens only. An expanded spectrum and enhanced potency of newer second generation oxazolidinones with activity against Gram-negative pathogens could expand the utility of this class beyond the hospital setting into the treatment of community acquired infections. Thus, there is an ongoing need to develop more effective and safe compounds. The compounds of the present invention are novel, none of them having being previously reported in the prior art. The novel compounds of Formula I according to the present invention possess improved efficacy particularly enhanced activity against bacterial infections, appreciable bioavailability, reduced associated side effects, good solubility and can be made into Formulations with ease.

Summary of the invention

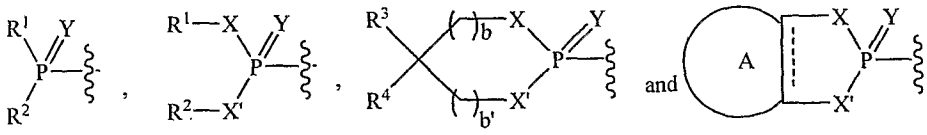
The present invention relates to novel phenyl oxazolidinones of Formula I,



Formula I

their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

Q is selected from the group consisting of:



P is phosphorus atom;

R^1 and R^2 are independently selected from hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_1-C_{12} alkoxy, C_1-

C_6alkoxyC_1-C_6alkyl, C_1-C_6alkoxyC_1-C_6alkoxyC_1-C_3alkyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, -$(CH_2)_n$-cycloalkyl, -$(CH_2)_n$-heterocyclyl, -$(CH_2)_n$-aryl or -$(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a; or

R^1 and R^2 together form a 5 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a;

R^3 and R^4 are same or different and can independently represent hydrogen, halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_1-C_{12}alkoxy, C_{1-12} haloalkoxy, C_1-C_6alkoxyC_1-C_6alkyl, C_1-C_6alkoxyC_1-C_6alkoxyC_1-C_3alkyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, -$(CH_2)_n$-cycloalkyl, -$(CH_2)_n$-heterocyclyl, -$(CH_2)_n$-aryl, -$(CH_2)_n$-heteroaryl, -$(CO)R^6$, -$(CO)NR^6R^7$, -$O(CO)R^6$, -$O(CO)NR^6R^7$, -$COOR^6$, -OR^6, -SR^6, -NO_2, -NR^6R^7, -$N(R^6)(CO)R^b$, -$N(R^6)(CO)OR^7$, -$N(R^6)(CO)NR^6R^7$, each of which may be optionally substituted at any available position by one or more substituents R^a; or

R^3 and R^4 together form 3 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a;

X and X′ are same or different and can independently represent O, S, -NH or $-NR^b$;

Y is O, S, –NH or-NR^b;

ring A is selected from the group consisting of C_3-C_{20} cycloalkyl, heterocyclyl, aryl and heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a;

' ------ ' is independently a single bond or is absent;

B is selected from the group consisting of CH and N;

Z is halogen, azido, isothiocyanate, thioalcohol, aryl, nitro, cyano, heteroaryl, OR^5, NHR^5 or $N(R^5)_2$ where R^5 is hydrogen, alkyl, acyl, thioacyl, C_{1-6} alkoxycarbonyl, C_{1-6} alkoxythiocarbonyl, C_{3-6} cycloalkoxycarbonyl ,C_{2-6} alkenyloxycarbonyl, C_{2-6} alkenyloxythiocarbonyl, C_{2-6} alkenylcarbonyl, aryl, aryloxycarbonyl, aryloxythiocarbonyl,

heteroaryloxycarbonyl, heteroaryl, heteroarylcarbonyl, heteroarylthiocarbonyl, heteroaryloxythiocarbonyl, each of which may be optionally substituted at any available position by one or more substituents R^a;

T, U, V and W are same or different and independently represent hydrogen or halogen;

R^6 and R^7 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted with halogen, hydroxyl, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} alkoxy, C_{1-12} alkylcarbonyl, C_{1-12} alkoxycarbonyl, C_{3-8} cycloalkyl, C_{1-12} haloalkyl, C_{1-12} haloalkoxy, C_{2-12} haloalkenyl, aryl, heterocyclyl, heteroaryl, $(CH_2)_n$-aryl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-heteroaryl, $(CH_2)_n$-cycloalkyl, CN, $-OR^8$, $-NO_2$, $-NR^8R^9$, $N(R^8)(CO)R^9$, $N(R^8)(CO)OR^9$, $N(R^8)(CO)NR^8R^9$, $-C(=L)R^8$ (wherein L is O or S), $-(CO)NR^8R^9$, $-O(CO)R^8$, $-O(CO)NR^8R^9$, $-COOR^8$, $-SR^8$, $S(O)_mR^8$, $SO_2NR^8R^9$; SO_3H, $NHSO_2R^8$, $P(O)_dR^8R^9$; or R^8 and R^9 may be joined together along with the nitrogen atom to which they are attached to form a heterocyclic or heteroaryl ring which may additionally contain from one to three heteroatoms independently selected from O, S and N, the ring formed may optionally be substituted with one or more substituents selected from R^a;

R^8 and R^9 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted with R^a;

R^a is selected from the group consisting of hydrogen, halogen, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_1-C_{12}alkoxy, C_{1-12} haloalkyl, C_{1-12} haloalkoxy, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{1-12} haloalkoxy, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl, $(CH_2)_n$-heteroaryl, C_{1-12} alkylcarbonyl, C_{1-12}alkoxycarbonyl, CN, $-OR^6$, $-NO_2$, $-NR^6R^7$, $N(R^6)(CO)R^7$, $N(R^6)(CO)OR^7$, $N(R^6)(CO)NR^6R^7$, $-C(=L)R^6$ (wherein L is O or S), $-(CO)NR^6R^7$, $-O(CO)R^6$, $-O(CO)NR^6R^7$, $-COOR^6$, $-SR^6$, $S(O)_mR^6$, $SO_2NR^6R^7$; SO_3H, $NHSO_2R^6$ and $P(O)_dR^6R^7$;

R^b is selected from the group consisting of hydrogen, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a;

a and a′ are same or different and independently represent 0,1,2,3 or 4;

b and b′ are same or different and independently represent 0,1,2,3 or 4;

m can be 1 or 2;

n can be 1, 2, 3 or 4;

d can be 1, 2 or 3.

Another aspect of the invention provides the processes for the preparation of the novel compounds of Formula I, their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

A further aspect of the present invention provides pharmaceutical compositions, containing compounds of Formula I, their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

Another aspect of the invention is the use of the compounds of Formula I as antimicrobial agents, effective against a number of aerobic and/or anaerobic Gram positive and/or Gram negative pathogens such as multi drug resistant Staphylococcus spp., Streptococcus spp., Enterococcus spp., Bacterioides spp., Clostridia spp., *H. influenza*, Moraxella Spp., as well as acid-fast organisms such as *Mycobacterium tuberculosis* and the like.

Yet another aspect of the present invention is to provide methods of using the compounds of Formula I of the present invention or compositions comprising the compounds of Formula I for the management such as prophylaxis, amelioration and/or treatment of disease(s)/ disorder(s) caused by microbial infections which comprises administering to a subject in need thereof the compounds of Formula I or compositions comprising a pharmaceutically effective amount of the compounds of Formula I.

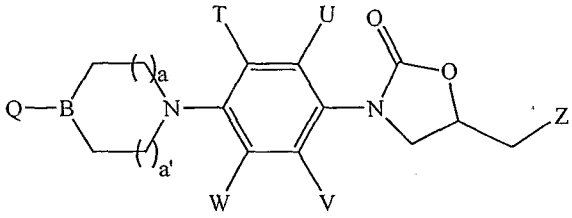
In another aspect, the present invention provides a method for treating Gram positive and/or Gram negative pathogens in a mammal by administering a therapeutically effective amount of a compound of Formula I or a pharmaceutically acceptable salt.

The present invention also encompasses prodrugs and active metabolites of the compounds of the Formula I.

Other aspects of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learnt by the practice of the invention.

Detailed description of the invention

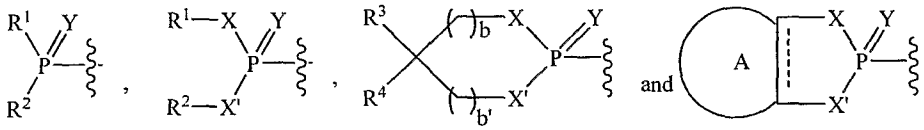
The present invention relates to novel phenyl oxazolidinones of Formula I,



Formula I

their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

Q is selected from the group consisting of:



P is phosphorus atom;

R^1 and R^2 are independently selected from hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_1-C_{12} alkoxy, C_1-C_6alkoxyC_1-C_6alkyl, C_1-C_6alkoxyC_1-C_6alkoxyC_1-C_3alkyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, -$(CH_2)_n$-cycloalkyl, -$(CH_2)_n$-heterocyclyl, -$(CH_2)_n$-aryl or -$(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a; or

R^1 and R^2 together form a 5 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a;

R^3 and R^4 are same or different and can independently represent hydrogen, halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_1-C_{12}alkoxy, C_{1-12} haloalkoxy, C_1-C_6alkoxyC_1-C_6alkyl, C_1-C_6alkoxyC_1-C_6alkoxyC_1-C_3alkyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, -$(CH_2)_n$-cycloalkyl, -$(CH_2)_n$-heterocyclyl, -$(CH_2)_n$-aryl, -$(CH_2)_n$-heteroaryl, -$(CO)R^6$, -$(CO)NR^6R^7$, -$O(CO)R^6$, -$O(CO)NR^6R^7$, -$COOR^6$, -OR^6, -SR^6, -NO_2, -NR^6R^7, -$N(R^6)(CO)R^b$, -$N(R^6)(CO)OR^7$, -$N(R^6)(CO)NR^6R^7$, each of which may be optionally substituted at any available position by one or more substituents R^a; or

R^3 and R^4 together form 3 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a;

X and X′ are same or different and can independently represent O, S, -NH or $-NR^b$;

Y is O, S, –NH or-NR^b;

ring A is selected from the group consisting of C_3-C_{20} cycloalkyl, heterocyclyl, aryl and heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a;

‘ ------ ’ is independently a single bond or is absent;

B is selected from the group consisting of CH and N;

Z is halogen, azido, isothiocyanate, thioalcohol, aryl, nitro, cyano, heteroaryl, OR^5, NHR^5 or $N(R^5)_2$ where R^5 is hydrogen, alkyl, acyl, thioacyl, C_{1-6} alkoxycarbonyl, C_{1-6} alkoxythiocarbonyl, C_{3-6} cycloalkoxycarbonyl ,C_{2-6} alkenyloxycarbonyl, C_{2-6} alkenyloxythiocarbonyl, C_{2-6} alkenylcarbonyl, aryl, aryloxycarbonyl, aryloxythiocarbonyl, heteroaryloxycarbonyl, heteroaryl, heteroarylcarbonyl, heteroarylthiocarbonyl, heteroaryloxythiocarbonyl, each of which may be optionally substituted at any available position by one or more substituents R^a;

T, U, V and W are same or different and independently represent hydrogen or halogen;

R^6 and R^7 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20}

cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted with halogen, hydroxyl, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} alkoxy, C_{1-12} alkylcarbonyl, C_{1-12} alkoxycarbonyl, C_{3-8} cycloalkyl, C_{1-12} haloalkyl, C_{1-12} haloalkoxy, C_{2-12} haloalkenyl, aryl, heterocyclyl, heteroaryl, $(CH_2)_n$-aryl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-heteroaryl, $(CH_2)_n$-cycloalkyl, CN, $-OR^8$, $-NO_2$, $-NR^8R^9$, $N(R^8)(CO)R^9$, $N(R^8)(CO)OR^9$, $N(R^8)(CO)NR^8R^9$, $-C(=L)R^8$ (wherein L is O or S), $-(CO)NR^8R^9$, $-O(CO)R^8$, $-O(CO)NR^8R^9$, $-COOR^8$, $-SR^8$, $S(O)_mR^8$, $SO_2NR^8R^9$; SO_3H, $NHSO_2R^8$, $P(O)_dR^8R^9$; or R^8 and R^9 may be joined together along with the nitrogen atom to which they are attached to form a heterocyclic or heteroaryl ring which may additionally contain from one to three heteroatoms independently selected from O, S and N, the ring formed may optionally be substituted with one or more substituents selected from R^a;

R^8 and R^9 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted with R^a;

R^a is selected from the group consisting of hydrogen, halogen, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_1-C_{12}alkoxy, C_{1-12} haloalkyl, C_{1-12} haloalkoxy, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{1-12} haloalkoxy, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl, $(CH_2)_n$-heteroaryl, C_{1-12} alkylcarbonyl, C_{1-12}alkoxycarbonyl, CN, $-OR^6$, $-NO_2$, $-NR^6R^7$, $N(R^6)(CO)R^7$, $N(R^6)(CO)OR^7$, $N(R^6)(CO)NR^6R^7$, $-C(=L)R^6$ (wherein L is O or S), $-(CO)NR^6R^7$, $-O(CO)R^6$, $-O(CO)NR^6R^7$, $-COOR^6$, $-SR^6$, $S(O)_mR^6$, $SO_2NR^6R^7$; SO_3H, $NHSO_2R^6$ and $P(O)_dR^6R^7$;

R^b is selected from the group consisting of hydrogen, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a;

a and a′ are same or different and independently represent 0,1,2,3 or 4;

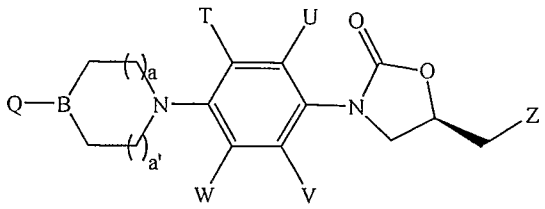
b and b′ are same or different and independently represent 0,1,2,3 or 4;

m can be 1 or 2;

n can be 1, 2, 3 or 4;

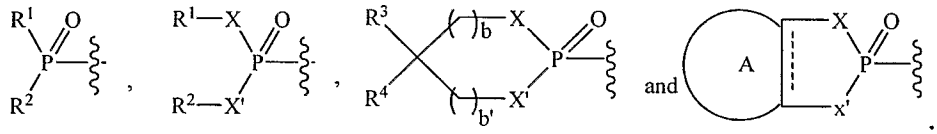
d can be 1, 2 or 3.

One embodiment of the present invention provides compounds of Formula Ia, wherein



Formula Ia

T, U, V, W, Z, B, Q are as defined herein; their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

In an embodiment of the compounds of the present invention, Q is selected from the group consisting of:  ;

wherein R^1, R^2, R^3 and R^4 are as defined herein; X and X′ are same or different and can be O or NH.

In another embodiment of the compounds of the present invention, R^1 and R^2 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_1-C_6alkoxyC_1-C_6alkyl, C_{3-20}cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl or $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a or R^1 and R^2 together form a 5 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a.

In another embodiment of the compounds of the present invention, it is preferred that R^3 and R^4 are independently selected from the group consisting hydrogen, halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{3-20}cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl, $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a or R^3 and R^4 together form a 3 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a.

In another embodiment of the compounds of the present invention, it is preferred that Z is selected from heteroaryl, OR^5, NHR^5 or $N(R^5)_2$ where R^5 is selected from hydrogen, alkyl, acyl, thioacyl, C_{1-6} alkoxycarbonyl, aryl, heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a.

In another embodiment of the compounds of the present invention, it is preferred that B represents N; T, U, V and W can be same or different and represent F or H.

In still another embodiment of the compounds of the present invention, it is preferred that ring A represents aryl or heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R_a.

In another embodiment of the compounds of the present invention, both a and a′ are 1 and b and b′ independently represent 1 or 2.

Relative to the above description of the oxazolidinone compounds of the present invention, the following definitions apply.

The term "alkyl" as used herein refers to a straight or branched hydrocarbon chain, having from 1 to 12 carbon atoms. Examples of alkyl include, but are not limited to, for example, methyl, ethyl, *n*-propyl, isoprppyl, *n*-butyl, *n*-pentyl, *t*-butyl and the like.

The term "alkenyl" as used herein refers to an aliphatic hydrocarbon group containing at least one carbon-carbon double bond and which may be straight or branched hydrocarbon chain having from 1 to 12 carbon atoms. Examples of alkenyl include, but are not limited to, for example, ethenyl, 1-propenyl, 2-propenyl, iso-propenyl, 1-butenyl, 2-butenyl, and the like.

The term "alkynyl" as used herein refers to a straight or branched hydrocarbon group containing at least one carbon-carbon triple bond and which may be straight or branched chain having from 1 to 12 carbon atoms. . Examples of alkynyl include, but are not limited to, for example, ethynyl, propynyl, and butynyl.

The term "alkoxy" refers to an above defined alkyl group attached via an oxygen linkage to the rest of the molecule. Non-limiting examples of such groups include $-OCH_3$, $-OC_2H_5$ and the like.

The term "alkylcarbonyl" refers to an above defined alkyl group attached via a carbonyl linkage to the rest of the molecule. Non-limiting examples of such groups include –C(O) CH_3, –C(O)C_2H_5, and the like.

The term "alkoxycarbonyl" refers to an above defined alkoxy group attached via a carbonyl linkage to the rest of the molecule. Non-limiting examples of such groups include –C(O)-O CH_3, –C(O)-OC_2H_5, and the like.

The term "haloalkyl" refers to an above-defined "alkyl" group, which is substituted with the "halogen" group, as defined herein, at any one or more of the 1 to 12 carbon atoms of the alkyl group. Representative examples of haloalkyl include, but are not limited to, chloromethyl, 2-fluoromethyl, trifluoromethyl, trichloromethyl, difluoroethyl, trifluoroethyl, dichloroethyl, and the like.

"Halogen" refers to Br, Cl, F or I.

The term "haloalkoxy" refers to an above defined "haloalkyl" group, appended to the parent molecular moiety through an oxygen atom.

The term "haloalkenyl" refers to atleast one halogen as defined herein, appended to the parent molecular moiety through an above defined alkenyl group. Representative examples of haloalkenyl include, but are not limited to, chloroethylenyl, 2-fluroethylene, triflurobutenyl and dichloropropenyl.

The term "cycloalkyl" refers to cyclic alkyl groups constituting of 3 to 20 carbon atoms having a single cyclic ring or multiple condensed rings, for example, fused or spiro systems which may optionally contain one or more olefinic bonds, unless otherwise constrained by the definition. Such cycloalkyl groups include, by way of example, single ring structures, for example, cyclopropyl, cyclobutyl, cyclopentenyl, cyclohexyl, cyclooctyl, and the like, or multiple ring structures, for example, adamantyl, and bicyclo[2.2.1] heptane, or cyclic alkyl groups to which is fused an aryl group, for example, indane and the like. Cycloalkyl groups may further be substituted with one or more substituents selected from but not limited to, for example, halogen, hydroxyl, oxo, carboxy, carboxyalkyl, azido, alkenyl, alkynyl, alkoxy, cycloalkyl, cycloalkynyl, acyl acyloxy, aryl, heterocyclyl, heteroaryl.

The term "aryl" herein refers to a carbocyclic aromatic group, for example phenyl or naphthyl ring and the like optionally substituted with one or more substituents selected from but not limited to, for example, halogen, hydroxyl, alkyl, alkenyl, alkynyl, cycloalkyl, alkoxy, acyl, aryloxy, CF_3, $COOR_d$ (wherein R_d can be hydrogen, alkyl, alkenyl, cycloalkyl, aralkyl, heterocyclylalkyl or heteroarylalkyl), cyano, nitro, carboxy, heterocyclyl, heteroaryl, heterocyclylalkyl or heteroarylalkyl. The aryl group may optionally be fused with cycloalkyl group, wherein the said cycloalkyl group may optionally contain heteroatoms selected from O, N, S.

The term "aralkyl" refers to alkyl-aryl linked through alkyl (wherein alkyl is the same as defined above) portion and the said alkyl portion contains carbon atoms from 1-6 and the aryl is as defined herein, after. The examples of aralkyl groups include benzyl and the like.

The term "heteroaryl" unless and otherwise specified refers to an aromatic ring structure or a bicyclic aromatic group with one or more heteroatom(s) independently selected from N, O and S and optionally substituted at any available position by substituent(s) selected from but not limited to halogen, hydroxyl, oxo, alkyl, alkenyl, alkynyl, cycloalkyl, acyl, carboxy, aryl, alkoxy, aralkyl, cyano, nitro, heterocyclyl, or heteroaryl. Examples of heteroaryl groups include oxazolyl, imidazolyl, pyrrolyl, 1,2,3,-triazolyl, 1,2,4-triazolyl, tetrazolyl, thiazolyl, oxadiazolyl, benzoimidazolyl, thiadiazolyl, pyridinyl, pyridazinyl, pyrimidinyl, thienyl, isoxazolyl, triazinyl, furanyl, benzofuranyl, indolyl, benzothiazolyl, benzoxazolyl, and the like.

The term "heterocyclyl" unless and otherwise specified refers to a cyclic, bicyclic or tricyclic cycloalkyl group, fully or partially unsaturated having 5 to 10 carbon atoms; with one or more heteroatom(s) independently selected from N, O and S, and are optionally benzofused or fused with heteroaryl of 5-6 ring members; the rings may be optionally substituted wherein the substituents are selected from but not limited to halogen, hydroxyl, oxo, alkyl, alkenyl, alkynyl, cycloalkyl, acyl, carboxy, aryl, alkoxy, aralkyl, cyano, nitro, heterocyclyl, or heteroaryl. Examples of heterocyclyl groups include but are not limited to oxazolidinyl, tetrahydrofuranyl, dihydrofuranyl, dihydropyridinyl, dihydroisooxazolyl, dihydrobenzofuryl, azabicyclohexyl, dihydroindonyl, piperidinyl or piperazinyl.

"Heteroarylalkyl" refers to alkyl-heteroaryl group linked through alkyl portion, wherein the alkyl and heteroalkyl are the same as defined previously.

"Heterocyclylalkyl" refers to alkyl-heterocyclyl group linked through alkyl portion, wherein the alkyl and heterocyclyl are the same as defined previously.

"Hydroxy" or "hydroxyl" refers to the group –OH.

When the functional group is termed "protected", this means that the group is in modified form to preclude undesired side reactions at the protected site. The term protecting group, unless otherwise specified, may be used with groups, for example, hydroxyl, amino, carboxyl and examples of such groups are found in T.W. Greene. et al. "Protecting Groups in Organic Synthesis," 3rd Ed, Wiley, New York, which is incorporated herein by reference. Examples of suitable hydroxyl and amino protecting groups are: trimethylsilyl, triethylsilyl, *o*-nitrobenzyloxycarbonyl, *p*-nitrobenzyloxycarbonyl, *t*-butyldiphenylsilyl, *t*-butyldimethylsilyl, benzyloxycarbonyl, *t*-butyloxycarbonyl, 2,2,2-trichloroethyloxycarbonyl, allyloxycarbonyl and the like. Examples of suitable carboxyl protecting groups are benzhydryl, *o*-nitrobenzyl, *p*-nitrobenzyl, 2-naphthylmethyl, allyl, 2-chloroallyl, benzyl, 2,2,2- trichloroethyl, trimethylsilyl, *t*-butyldimethylsilyl, *t*-butyldiphenylsilyl, 2-(trimethylsilyl)ethyl, phenacyl, *p*-methoxybenzyl, acetonyl, *p*-methoxyphenyl, 4-pyridylmethyl, *t*-butyl and the like.

"Subject" includes humans, non-human mammals (e.g., dogs, cats, rabbits, cattle, horses, sheep and the like) or non-mammals (e.g., birds and the like).

The term "therapeutically effective amount" means the amount of a compound that, when administered to a subject for treating a disease, is sufficient to effect such treatment for the disease. The "therapeutically effective amount" will vary depending on the compound, the disease and its severity, weight, physical condition and responsiveness of the subject to be treated, among other factors.

A "pharmaceutically acceptable salt" refers to salts prepared from pharmaceutically acceptable non-toxic bases or acids including inorganic or organic bases and inorganic or organic acids.

"Prodrug" refers to a compound that is administered in an inactive (or significantly less active) form and which upon *in-vivo* administration undergoes cleavage by metabolic processes before becoming active pharmacological substances. In general such prodrugs are derivatives of functional groups of compounds of the invention which are readily

convertible *in vivo* into the compound of the invention. Examples of prodrugs include, but are not limited, to esters, carbamates, acetamides and the like.

The compounds provided herein may contain one or more asymmetric carbon atoms and thus can exist as racemates, mixtures of enantiomers, single enantiomers, diastereomeric mixtures and individual diastereomers. All such isomeric forms of these compounds are expressly encompassed herein. Each stereogenic carbon may be independently of the *R* or *S* configuration. Although the specific compounds exemplified in this application may be depicted in a particular stereochemical configuration, compounds having the opposite stereochemistry at the chiral centre or mixtures thereof are encompassed herein. Some compounds of the present invention may exhibit *cis/trans* isomers. The present invention includes each of the geometric isomers and its mixtures.

Particularly useful examples of the present invention include but are not limited to the following compounds:

Compound No. 1: (*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid bis-(2-methoxy-ethyl) ester

Compound No. 2: (*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid diprop-2-ynyl ester

Compound No. 3: (*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid dibenzyl ester

Compound No. 4: (*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid bis-(tetrahydro-furan-2-ylmethyl) ester

Compound No. 5: (*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid diphenyl ester

Compound No. 6: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 7: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5-methylene-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 8: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-4,7-dihydro-2λ^5-[1,3,2]dioxaphosphepin-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 9: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(3-oxo-1,5-dihydro-3λ^5-benzo[e][1,3,2]dioxaphosphepin-3-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 10: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5,5,6,6-tetrafluoro-2-oxo-2λ^5-[1,3,2]dioxaphosphepan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 11: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphepan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 12: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5-hydroxymethyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 13: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]oxazaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 14: (*S*)-*N*-(3-{4-[4-(5-Benzyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 15: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(6-oxo-5,7-dioxa-6λ^5-phospha-spiro[2.5]oct-6-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 16: (*S*)-*N*-(3-{4-[4-(4,6-Dimethyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 17: (*S*)-*N*-(3-{4-[4-(5,5-Diallyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 18: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(8-oxo-7,9-dioxa-8λ^5-phospha-spiro[4.5]dec-2-en-8-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 19: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-5,5-di-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 20: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 21: (*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

Compound No. 22: (*S*)-*N*-(3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 23: (*S*)-(3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

Compound No. 24: (*S*)-(3-{4-[4-(5,5-Diallyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

Compound No. 25: (*S*)-(3-{3,5-Difluoro-4-[4-(8-oxo-7,9-dioxa-8λ^5-phospha-spiro[4.5]dec-2-en-8-yl)-piperazin-1-yl]- phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

Compound No. 26: (*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

Compound No. 27: *(R)*-3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

Compound No. 28: (*S*)-(4-{2,6-Difluoro-4-[5-(methoxycarbonylamino-methyl)-2-oxo-oxazolidin-3-yl]-phenyl}-piperazin-1-yl)-phosphonic acid diprop-2-ynyl ester

Compound No. 29: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5-morpholin-4-yl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 30: *(R)*-3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

Compound No. 31: *(R)*-3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

Compound No. 32: *(R)*-3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-5-(isoxazol-3-yloxymethyl)-oxazolidin-2-one

Compound No. 33: *(R)*-3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-(isoxazol-3-yloxymethyl)-oxazolidin-2-one

Compound No. 34: (*S*)-*N*-(3-{4-[4-(5-Chloro-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Compound No. 35: (*S*)- (3-{3,5-Difluoro-4-[4-(5-fluoro-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

The compounds of the present invention are prepared in accordance with one or more of the Schemes discussed herein after. All of the starting materials are either commercially available or can be prepared by procedures that would be well known to one of ordinary skill in organic chemistry.

"L" is used to denote an appropriate leaving group and as such may vary in nature depending on the exact reaction conditions employed. Some typical leaving groups may be fluoro, chloro, bromo, iodo, tosyl, mesyl, trifluoromethanesulfonyl and the like, but these should not be construed as limiting as many other leaving groups are also well known to those skilled in the art.

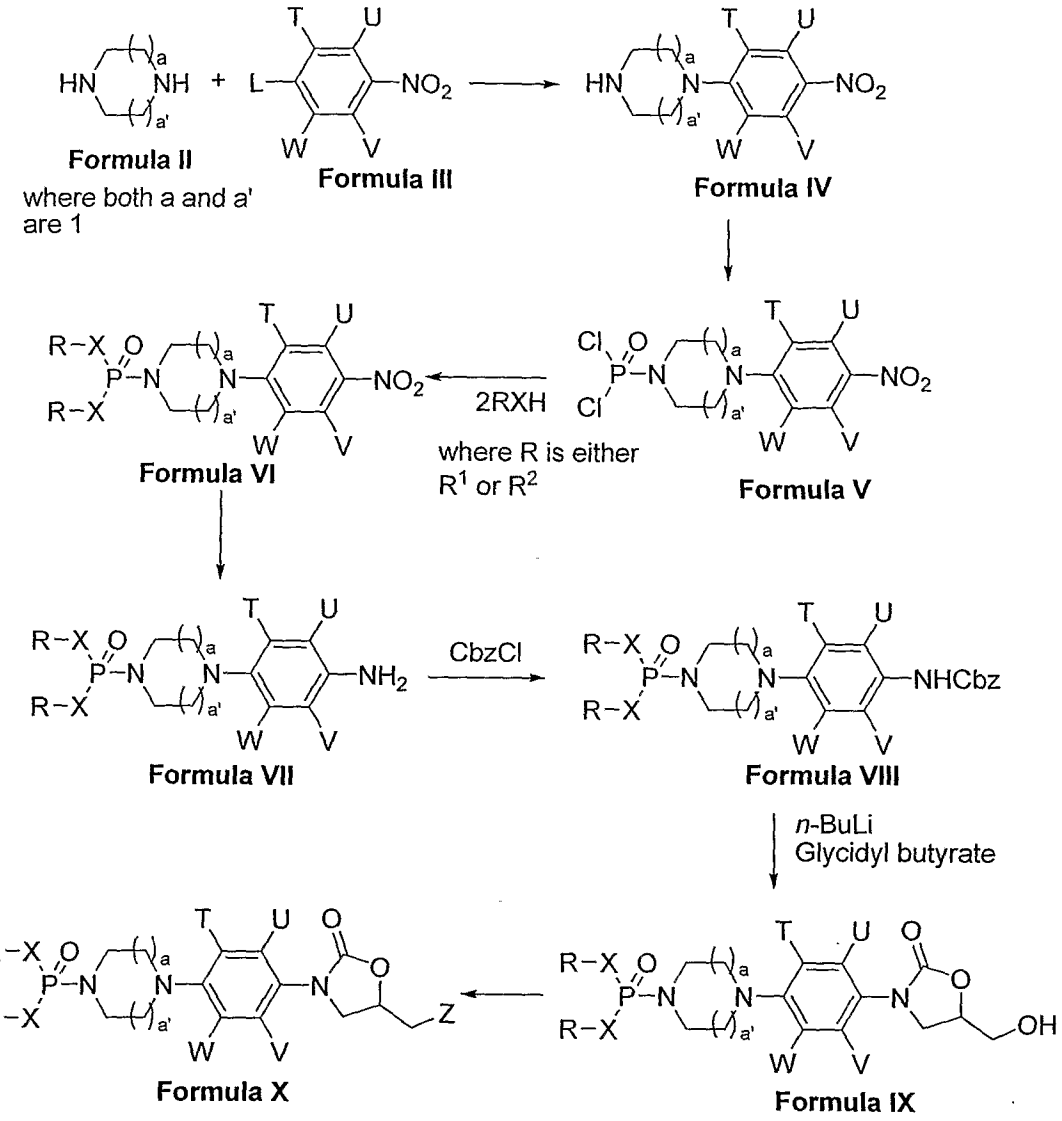
The compounds of Formula X are obtained by following Scheme I.

Compounds of Formula IV are obtained by reacting piperazine compounds of Formula II with a substituted nitrobenzene derivatives of Formula III (wherein T,U,V,W are the same as defined earlier and L is an appropriate leaving group such as fluoro, chloro, bromo, iodo) in an appropriate solvent and base. The reaction is allowed to proceed at an appropriate temperature, which, depending on the solvent chosen, may be between r.t. to 100 °C, until such time that the reaction is determined to be complete. Examples of appropriate solvents include acetonitrile, tetrahydrofuran, methylene dichloride, dichloroethane, DMF, DMSO and the like or mixtures thereof. Examples of appropriate bases include triethylamine, potassium carbonate, diisopropylethyl amine and the like. The compounds of Formula IV (wherein T,U,V,W are as defined herein) are then reacted with $POCl_3$ to form compounds of Formula V in a suitable solvent such as methylene dichloride, chloroform, toluene and the like or the mixtures thereof. Compounds of Formula V are reacted with 2 equivalents of RXH (where R is either R^1 or R^2; X is as defined herein) to form compounds of Formula VI in the presence of a suitable base such as *n*-butyllithium, diisopropylethyl amine and the like and in the presence of a suitable solvent such as tetrahydrofuran, methylene dichloride, diethylether, dioxane and the like or the mixtures thereof. The nitro derivatives of Formula VI (wherein R^1, R^2, X, X′ T, U, V, W, a, and a′ are as defined herein) are then reduced to the corresponding amino compounds of Formula VII (wherein R^1, R^2, X, X′ T, U, V, W, a, and a′ are as defined herein) by a variety of reducing agents such as hydrogenation over an appropriate catalyst such as palladium on activated charcoal or chemical methods such as reaction with $FeCl_3$ or $SnCl_2$/HCl or $NiCl_2$/$NaBH_4$ familiar to those skilled in the art. The resulting amine is then treated with benzyl or methyl chloroformate and sodium bicarbonate in presence of water and acetone to form the corresponding benzyl or methyl carbamate derivatives VIII (wherein R^1, R^2, X, X′ T, U, V,

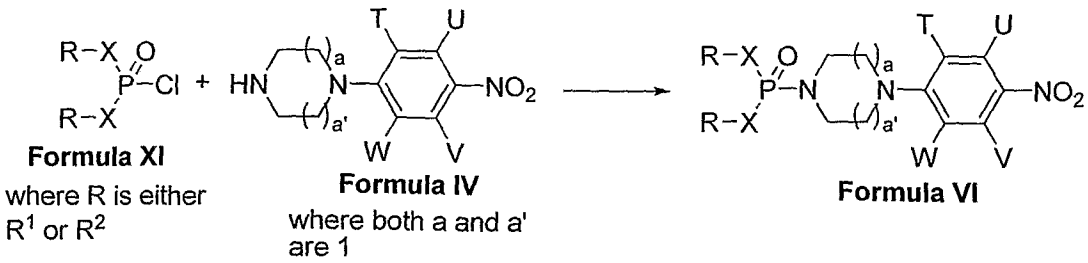
W, a, and a′ are as defined herein) which are then deprotonated in the next step with a lithium base such as *n*-butyllithium and reacted with glycidyl butyrate in presence of a suitable solvent such as diethylether or tetrahydrofuran to afford the oxazolidinone IX (wherein R^1, R^2, X, X′ T, U, V, W, a, and a′ are as defined herein). The hydroxyl group is then converted to Z to form compounds of Formula X (wherein R^1, R^2, X, X′ T, U, V, W, a, a′ and Z are as defined herein). The exact nature of the reagents used for this conversion is dependent on the nature of the Z desired. For example, if Z is desired to be acetylamine group, the hydroxyl group is first converted to azide group followed by reaction with thioacetic acid. If Z is desired to be O-Heteroaryl, the hydroxyl group is first converted to the mesylate or other appropriate leaving group and then reacted with a suitable hydroxyl containing heterocycle in the presence of suitable base and solvent such as sodium hydride and *N,N*-dimethylformamide (DMF) or the like. The appropriate conditions and reagents for any particular Z group can be readily selected by those having well known skill in the art.

The compounds of Formula X are alternatively prepared by following the Scheme II. The compounds of Formula XI (wherein R^1, R^2, X and X′ are as defined herein) are commercially available or can be easily obtained by those skilled in the art. Compounds of Formula VI are obtained by reacting compounds of Formula IV with compounds of Formula XI in the presence of a suitable base as triethylamine, diisopropylethyl and the like and in the presence of a suitable solvent such as methylene dichloride, chloroform, toluene and the like or mixtures thereof. The compounds of Formula X are then obtained from compounds of Formula VI as described in the Scheme I.

Scheme I



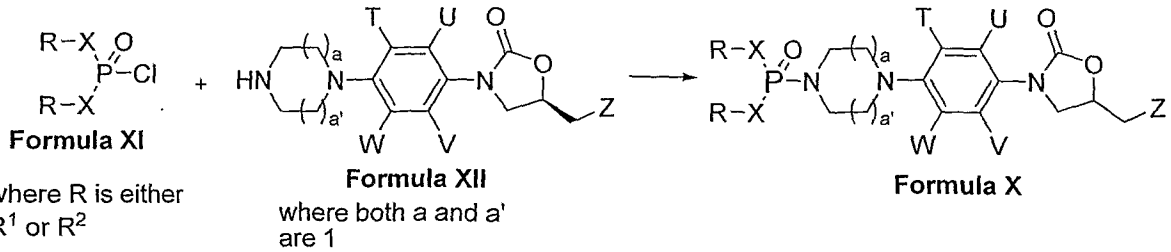
Scheme II



The compounds of Formula X are alternatively obtained following the Scheme III by first reacting compounds of Formula XI with compounds of Formula XII (wherein T,U,V,W , Z, a, and a′ are as defined herein and can easily be formed by methods known, for example, those described in PCT application WO/06043121) in the presence of a

suitable base such as triethylamine, pyridine and the like and in the presence of a suitable solvent such as methylene dichloride, chloroform, toluene, dimethylsulphoxide, dimethylformamide, acetonitrile and the like or the mixtures thereof.

Scheme III



Formula XI

where R is either R^1 or R^2

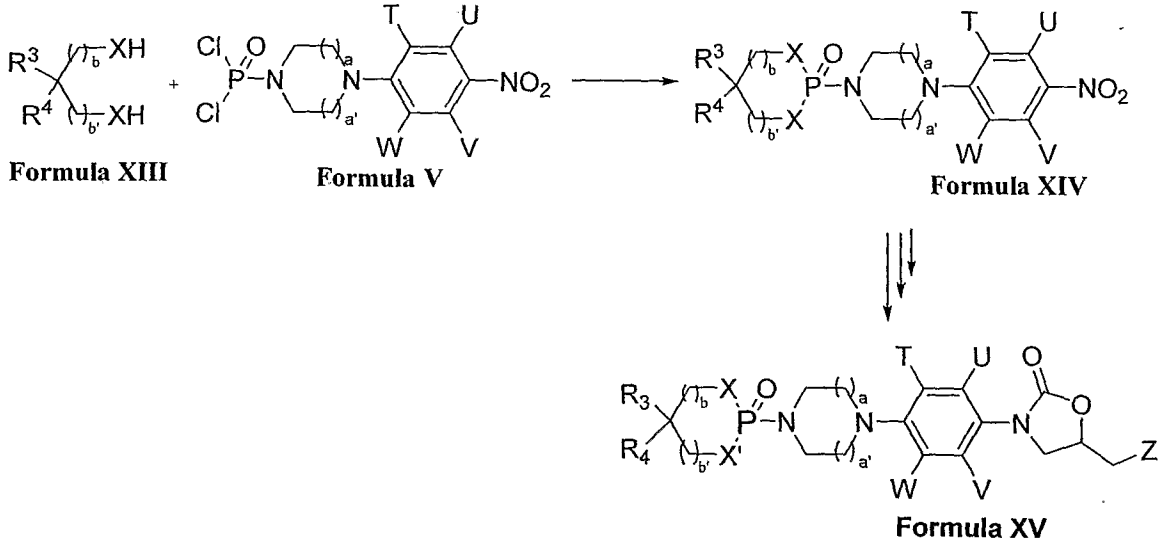
Formula XII

where both a and a' are 1

Formula X

The compounds of Formula XV (wherein R^3, R^4, X, X' T, U, V, W, Z, a, a', b and b' are as defined herein) are obtained by following the Scheme IV. Compounds of Formula XIV are obtained by reacting compounds of Formula XIII with compounds of Formula V in the presence of a suitable base as *n*-butyllithium, triethylamine, diisopropylethylamine and the like and in the presence of a suitable solvent such as tetrahydrofuran, methylene dichloride, chloroform and the like of mixtures thereof. The compounds of Formula XV are then obtained from compounds of Formula XIV as described in the Scheme I.

Scheme IV



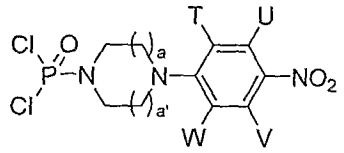
Formula XIII

Formula V

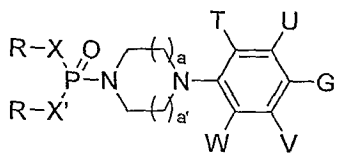
Formula XIV

Formula XV

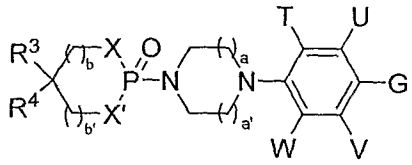
Some novel intermediates synthesized using the procedures described in **Schemes I-IV** are exemplified below.



where T, U, V, W are as defined herein; a and a′ are both 1



where G is $-NO_2$, $-NH_2$ or -NHCbz ; R is either R^1 or R^2; T, U, V, W, R^1, R^2, X and X′ are as defined herein; a and a′ are both 1



where G is $-NO_2$, $-NH_2$ or -NHCbz ;

T, U, V, W, R^3, R^4, X and X′ are as defined herein;

a, a′, b and b′ each are 1.

It is understood that, as used herein, references to the compounds of structural Formula I are meant to also include the pharmaceutically acceptable salts, and also salts that are not pharmaceutically acceptable when they are used as precursors to the free compounds or their pharmaceutically acceptable salts or in other synthetic manipulations. The compounds of the present invention may be administered in the form of a pharmaceutically acceptable salt. The term "pharmaceutically acceptable salt" refers to salts prepared from pharmaceutically acceptable non-toxic bases or acids including inorganic or organic bases and inorganic or organic acids. The salts may be prepared during the final isolation and purification of the compounds or separately by making basic or acidic addition salts. Representative salts of basic compounds of the present invention can be prepared by reacting free base form of the compound with a suitable acid, including, but not limited to acetate, trifluoroacetate, adipate, citrate, aspartate, benzoate, benzenesulphonate, bisulfate, besylate, butyrate, camphorsulphonate, difluconate, hemisulfate, heptanoate, formate, fumarate, lactate, maleate, methanesulfonate, naphthylsulfonate, nicotinate, oxalate, picrate, pivalate, succinate, tartrate, tirchloracetat, glutamate, *p*-toluenesulphonate, hydrochloric, hydrobromic, sulphuric, phosphoric and the like. Representative salts of acidic compounds of the present invention can be prepared by reacting free acid form of the compound with a suitable base, including, but not limited to ammonium, calcium, magnesium, potassium, sodium salts, salts of primary, secondary and tertiary amines,

substituted amines including naturally occurring ones e.g., arginine, betaine, caffeine, choline, glucamine, glucosamine, histidine, lysine, morpholine, piperazine, piperidine, purine, triethylamine and the like. Compounds of the present invention that contain a carboxylic acid (-COOH) or alcohol group, their pharmaceutically acceptable esters of carboxylic acids such as methyl, ethyl and the like, or acyl derivatives of alcohols such as acetate and the like, can be employed. Compounds of the present invention that comprise basic nitrogen atom may be quaternized with alkyl halides, alkyl sulfates and the like. Such salts permit the preparation of both water soluble and oil soluble compounds of the present invention. It should be recognized that the free base or free acid forms will typically differ from their respective salt forms somewhat in physical properties such as solubility in polar solvents, but otherwise the salts are equivalent to their respective free forms for the purpose of the invention.

The "pharmaceutically acceptable solvates" refer to solvates with water (i.e., hydrates) or pharmaceutically acceptable solvents, for example, ethanol and the like.

The invention also encompasses "prodrugs" of the compounds of the present invention which upon *in-vivo* administration undergo cleavage by metabolic processes before becoming active pharmacological substances. In general such prodrugs are derivatives of functional group of a compound of the invention which are readily convertible *in vivo* into the compound of the invention. Conventional procedures for the selection and preparation of suitable prodrug derivatives are described, for example, in "Targeted prodrug design to optimize drug delivery", *AAPS PharmaSci* (2000), *2*(1), E6.

The invention also encompasses active "metabolites" of the compound of the present invention.

Various "polymorphs" of a compound of general Formula I forming part of this invention may be prepared by crystallization of a compound of Formula I under different conditions. For example, by using different solvents commonly used or their mixtures for recrystallization; crystallizations at different temperatures; various modes of cooling, ranging from very fast to very slow cooling during crystallizations, heating or melting the compound followed by gradual or fast cooling may also obtain polymorphs. The presence of polymorphs may be determined by solid probe NMR spectroscopy, IR spectroscopy, differential scanning calorimetry, powder X-ray diffraction or such other techniques.

The present invention also provides pharmaceutical compositions, comprising compounds of the present invention or their pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers, polymorphs, prodrugs, metabolites, salts or solvates

thereof optionally in combination with one or more pharmaceutically acceptable carriers comprising excipients and auxiliaries. The pharmaceutical compositions may be in any form known in the art, such as tablets, capsules, powders, syrups, solutions, suspensions and the like, may contain flavourants, sweeteners etc in suitable solid or liquid carriers or diluents, or in suitable sterile media to form injectable solutions or suspensions. Such compositions typically contain active compound optionally in combination with pharmaceutically acceptable carriers, diluents or solvents.

The pharmaceutical compositions of the present invention can be manufactured by the processes well known in the art, for example, by means of conventional mixing, dissolving, dry granulation, wet granulation, dragee-making, levigating, emulsifying, encapsulating, entrapping, lyophilizing processes or spray drying. The compounds or the pharmaceutical compositions comprising such compounds of the present invention may be administered in the form of any pharmaceutical Formulation. The pharmaceutical Formulation will depend upon the nature of the active compound and its route of administration. Any route of administration may be used, for example oral, buccal, pulmonary, topical, parenteral (including subcutaneous, intramuscular and intravenous), transdermal, ocular (ophthalmic), by inhalation, intranasal, transmucosal, implant or rectal administration. Preferably the compounds of the present invention are administered orally, parenterally or topically.

In an embodiment, the amount of the novel compounds having the Formula I according to the present invention to be incorporated into the pharmaceutical compositions of the present invention can vary over a wide range depending on known factors such as, for example, the disorder to be treated, the severity of the disorder, the patient's body weight, the dosage form, the chosen route of administration and the number of administrations per day. Typically, the amount of the compound of Formula I in the pharmaceutical compositions of the present invention will range from approximately 0.01 mg to about 5000 mg. In an embodiment, the daily dose of composition comprising the novel compounds having the Formula I is in the range of about 0.01 mg/kg to about 100 mg/kg based on the body weight of the subject in need thereof which may be administered as a single or multiple doses.

In an embodiment, the novel compounds having the Formula I according to the present invention are particularly useful for the treatment of disease(s) or disorder(s) which are particularly acute in nature and which require a short term but mild to moderate treatment, or even some chronic conditions which favorably respond to or are alleviated by

the novel compounds having the Formula I or compositions comprising them. The compositions comprising the novel compounds having the Formula-I are useful prophylactically or therapeutically depending upon the pathological condition intended to be prevented or treated respectively.

The compounds of the present invention are effective against a number of aerobic and/or anaerobic Gram positive and/or Gram negative pathogens such as multi drug resistant Staphylococcus spp., Streptococcus spp., Enterococcus spp., Bacterioides spp., Clostridia spp., *H. influenza*, Moraxella Spp., as well as acid-fast organisms such as *Mycobacterium tuberculosis* and the like. Thus, a further embodiment of the present invention is the use of a compound of Formula I for the manufacture of a medicament for the prophylaxis, amelioration and/or treatment of bacterial infections in a subject in need thereof preferably a mammal including a human. Another embodiment of the present invention provides methods for the management such as prophylaxis, amelioration and/or treatment of bacterial infections in a subject in need thereof preferably a mammal including a human that comprises administering a therapeutically effective amount of compound of Formula I. In still another embodiment of the present invention is provided use of the dosage form compositions comprising the novel compounds of Formula I for the treatment of disease(s)/disorder(s) which comprises administrating to a subject in need thereof a pharmaceutically effective amount of the composition.

The compounds of the present invention may be used in combination with one or more other active ingredients such as quinolines, β-lactams e.g., cephalosporins, penicillins, penams, penems and the like in the prophylaxis, amelioration and/or treatment of bacterial infections, where the combination of the active ingredients together are safer or more effective than either active ingredient alone or where incorporation of another active ingredient might reduce the dose of the compound of Formula I.

In-vitro data

The *in-vitro* antibacterial activity of the compounds of the present invention (as described in Table 1) was determined by a broth microdilution method following the test method from the Clinical and Laboratory Standards Institute (CLSI). This method is described in the CLSI Document M7-A7, Vol.26, No.2, "*Methods for Dilution Antimicrobial Susceptibility Test for Bacteria that Grow Aerobically; Approved Standard-Seventh Edition*", which is incorporated herein by reference. Minimum Inhibitory Concentration (MIC) is defined as the lowest concentration of the test compound that completely inhibits

growth of the organism in the microdilution well or on the surface of the agar as in the test carried out by agar dilution method.

The compounds of the present invention were tested against a panel of standard microorganisms obtained from ATCC (American type culture collection). Linezolid was used as comparator in all the tests.

Organism	**ATCC No.**	**Type**
Staphylococcus aureus	29213	MSSA (Methicillin sensitive)
Staphylococcus aureus	33591	MRSA (Methicillin resistant)
Enterococcus faecalis	29212	Sensitive strain
Enterococcus faecium	700221	VRE (Vancomycin resistant *E.faecium*)

In this method, the compound was dissolved in dimethylsulfoxide and two fold serial dilutions were carried out in 96 well microtitre plates. The inoculum was prepared by adjusting the turbidity of actively growing broth culture and added to the wells to obtain a final concentration of approx. $5x10^4$ CFU/well. The microtitre plates were incubated at 35±2°C for 16-20 hrs and then read visually. MIC_s (µg/mL) of some of the compounds of Formula 1 are presented in the Table 1.

Table 1 *In-vitro* antibacterial activity MIC_s (µg/mL)

Compound No.	*S. aureus* ATCC 29213	*S. aureus* ATCC 33591	*E. faecalis* ATCC 29212	*E. faecium* ATTC 700221
2	2	1	2	1
5	2	2	2	2
6	2	2	2	2
7	2	1	2	2
8	2	1	1	2
10	2	1	2	2
11	2	2	2	4
14	4	2	2	2
19	2	1	1	2
20	2	2	2	2
21	4	2	2	2
22	2	2	2	2

23	2	1	1	1
26	1	1	1	1
27	2	1	1	1
30	2	0.5	2	1
31	2	1	1	2
32	2	2	2	1
35	2	2	2	1
Linezolid	2	1	2	2

As can be seen from Table I, the compounds of the present invention show potential antibacterial activity against *Staphylococcus aureus* (MRSA) and *Enterococci* (VRE).

EXAMPLES

The invention is explained in detail in the following examples which are given solely for the purpose of illustration only and therefore should not be construed to limit the scope of the invention. All of the starting materials are either commercially available or can be prepared by procedures that would be well known to one of ordinary skill in organic chemistry. Solvents were dried prior to use wherever necessary by standard methods (Perrin, D.D.; Armarego, W.L.F. Purification of Laboratory Chemicals, Pergamon Press: Oxford, 1988). Mass spectra (MS) were obtained by electron spray ionization (ESI) eV using Applied biosystem 4000 Q TRAP. ^{1}H NMR were recorded on Bruker 400 MHz Avance II NMR spectrometer. Chemical shifts are reported as δ values in parts per million (ppm), relative to TMS as internal standard. All coupling constants (*J*) values are given in Hz.

Abbreviations

The following abbreviations are employed in the examples and elsewhere herein:

^{1}H NMR	Proton nuclear magnetic resonance
bs	broad singlet
C	Centigrade
$CDCl_3$	Deuterated chloroform
DCM	dichloromethane
d	Doublet
dd	doublet of doublet

DIPEA	diisopropylethylamine
ESI-MS	electron spray ionization mass Spectroscopy
g	gram(s)
h	hour(s)
Hz	Hertz
J	coupling constant
m	Multiplet
mg	Milligram
min	Minutes
mL	Milliliter
mmol	Millimoles
Na_2SO_4	sodium sulphate
$NaHCO_3$	sodium bicarbonate
n-BuLi	*n*-Butyl lithium
NH_4Cl	Ammonium chloride
NMR	Nuclear magnetic resonance
Pd/C	Palladium on carbon
$POCl_3$	Phosphorous oxychloride
q	Quartet
r. t.	room temperature
s	Singlet
t	Triplet
THF	tetrahydrofuran
TLC	Thin layer chromatography

Preparation of Intermediate 1: 1-(2,6-Difluoro-4-nitro-phenyl)-piperazine:

A solution of piperazine (24 g, 0.28 mol) and 3,4,5-Trifluoronitrobenzene (13 mL, 0.11 mol) in acetonitrile (200 mL) was stirred at 60 °C. The progress of reaction was monitored by TLC. On completion, acetonitrile was evaporated under reduced pressure. The residue was dissolved in ethyl acetate (300 mL) and washed with water (100 mL), brine (100 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The residue was purified by silica gel flash chromatography using chloroform:methanol (9:1) to provide desired product (25.8 g, 92%) as orange solid.

ESI-MS (*m/z*): 244.1 (M+1).

Preparation of Intermediate 2: [4-(2,6-difloro-4-nitrophenyl)piperazin-1-yl]phosphonic dichloride:

To a stirred solution of Intermediate 1 (6 g, 27.7 mmol) in DCM (40 mL) at -78 °C under nitrogen atmosphere was added $POCl_3$ (2.2 mL, 23.6 mmol) dropwise. The resulting slurry was stirred at 0 °C and progress of reaction was monitored by TLC. On completion, the reaction mixture was adsorbed on silica gel and purified by column chromatography using chloroform. The desired product (4.4 g, 50%) was obtained as yellow solid.

ESI-MS (*m/z*): 360.1 (M+1).

Example I: Synthesis of (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

Step 1: 1-(2,6-Difluoro-4-nitro-phenyl)-4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazine

In a dried round bottomed flask under nitrogen atmosphere was added 1,3-propanediol (0.7 mL, 9.7 mmol) in dry THF (5 mL). The reaction mixture was cooled to 0 °C and *n*-BuLi (12.1 mL, 19.4 mmol, 1.6 *M* solution in hexane) was added dropwise. The reaction mixture was stirred for 30 min. Intermediate 2 (3.5 g, 9.7 mmol) in dry THF (20 mL) was added dropwise and the reaction mixture was stirred at r.t.. The progress of reaction was monitored by TLC. On completion, the reaction mixture was quenched with saturated NH_4Cl (20 mL) and extracted with ethyl acetate (100 mL). The organic layer was washed with brine (25 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The residue was purified by silica gel flash chromatography using chloroform: methanol (33:1) to provide desired product (2.5 g, 72%) as yellow solid.

ESI-MS (*m/z*): 386.1 (M+23), 365.1 (M+2), 363.9 (M+1).

Step 2: 3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenylamine

To a solution of compound (2.5 g, 6.89 mmol), obtained in step 1, in methanol (25 mL) under argon atmosphere was added 10% Pd/C (375 mg, 15 mol% by weight). The flask was evacuated and hydrogen was introduced with the help of balloon. The reaction mixture was stirred under hydrogen and progress of the reaction was monitored by TLC. On completion, the reaction mixture was filtered through celite pad and washed with methanol (50 mL). The filterate was evaporated to provide desired compound (2.1 g, 91%) as off white solid.

ESI-MS (*m/z*): 356.0 (M+23), 333.9 (M+1).

Step 3: {3,5-Difluoro-4-[4-(2-oxo-2 λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-carbamic acid benzyl ester

To a solution of compound (2.1 g, 6.3 mmol), obtained in step 2, in 1:1 acetone:water (25 mL) was added sodium bicarbonate (1.14 g, 13.54 mmol). The resulting solution was cooled to 0 °C and benzyl chloroformate (3.1 mL, 18.5 mmol, 50% solution in toluene) was added dropwise. The reaction mixture was stirred at r.t. and progress of reaction was monitored by TLC. On completion, the solvent was evaporated under reduced pressure and the residue was dissolved in ethyl acetate (200 mL). The organic layer was washed with water (50 mL), brine (50 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The residue was purified by silica gel flash chromatography using chloroform:methanol (33:1) to provide desired product (2.7 g, 91%) as off white solid.

ESI-MS (*m/z*): 490.3 (M+23), 469.4 (M+2), 468.4 (M+1).

Step 4: (*R*)-[3-{3,5-Difluoro-4-[4-(2-oxo-2 λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-hydroxymethyl-oxazolidin-2-one

In a dried round bottomed flask under nitrogen atmosphere was added compound (2.7 g, 5.78 mmol), obtained in step 3, in dry THF (25 mL). The solution was cooled to -78 °C and *n*-BuLi (6.5 mL, 10.4 mmol, 1.6 *M* solution in hexane) was added dropwise. The reaction mixture was stirred at the same temperature for one hour and (*R*)-glycidyl butyrate (0.9 mL, 6.36 mmol) in dry THF (5 mL) was added dropwise over a period of 5 min. The reaction mixture was stirred at -78 °C for two hours and warmed to r.t. The progress of reaction was monitored by TLC and on completion, the reaction mixture was quenched with saturated NH_4Cl solution (20 mL) and extracted with ethyl acetate (100 mL). The organic layer was washed with brine (30 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The residue was purified by silica gel flash chromatography using chloroform:methanol (20:1) to provide desired product (1.09 g, 44%) as off white solid.

ESI-MS (*m/z*): 472.4 (M+39), 456.4 (M+23), 434.4 (M+1).

Step 5: (*R*)-Methanesulfonic acid 3-{3,5-difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl ester

To a solution of compound (1.08 g, 2.5 mmol), obtained in step 4, in DCM (20 mL) was added triethylamine (0.9 mL, 6.5 mmol). The reaction mixture was cooled to 0 °C and methanesulfonyl chloride (0.3 mL, 3.88 mmol) was added dropwise. The reaction mixture was stirred at r.t. and progress of the reaction was monitored by TLC. On completion, the reaction mixture was diluted with chloroform (50 mL). The organic layer was washed with water (25 mL), brine (25 mL), dried over anhydrous sodium sulphate and concentrated *in*

vacuo. The crude product (1.2 g, 94%) was obtained as off white solid and subjected to further reaction without any purification.

ESI-MS (*m/z*): 550.3 (M+39), 534.3 (M+23), 512.2 (M+1).

Step 6: (*R*)-5-Azidomethyl-3-{3,5-difluoro-4-[4-(2-oxo-2 λ^5-1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-oxazolidin-2-one

To a solution of compound (1.2 g, 2.35 mmol), obtained in step 5, in DMF (20 mL) was added sodium azide (0.15 g, 2.35 mmol). The reaction mixture was stirred at 80 °C and progress of the reaction was monitored by TLC. On completion, the reaction mixture was diluted with water (25 mL) and extracted with ethyl acetate (100 mL). The organic layer was washed with brine (50 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The crude product (0.85 g, 81%) was obtained as off white solid and subjected to further reaction without any purification.

ESI-MS (*m/z*): 459 (M+1).

Step 7: (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2 λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

A solution of compound (200 mg, 0.44 mmol), obtained in step 6, in thioacetic acid (2 mL) was stirred for 12 h at r.t. The reaction mixture was then adsorbed on silica gel and purified by silica gel column chromatography using chloroform:methanol (20:1) to yield the title compound (137 mg, 66%) as white solid.

^{1}H NMR (400 MHz, $CDCl_3$): δ 1.75-1.85 (m, 1H), 2.02 (s, 3H), 2.10-2.25 (m, 1H), 3.05-3.15 (m, 4H), 3.25-3.35 (m, 4H), 3.55-3.65 (m, 1H), 3.65-3.75 (m, 2H), 3.99 (t, J = 9.0 Hz, 1H), 4.25-4.35 (m, 2H), 4.55-4.65 (m, 2H), 4.70-4.80 (m, 1H), 6.07 (t, J = 6.2 Hz, 1H), 7.08 (d, J = 11.0 Hz, 2H).

ESI-MS (*m/z*): 497.3 (M+23), 475.3 (M+1).

Example II: Synthesis of (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

The title compound was prepared following the procedure as described above in Example I by replacing propane-1,3-diol with 2-Prop-2-ynyl-propane-1,3-diol.

^{1}H NMR (400 MHz, $CDCl_3$): δ 2.00-2.45 (m, 6H), 2.53 (dd, J = 7.7 and 2.6 Hz, 1H), 3.00-3.20 (m, 4H), 3.25-3.40 (m, 4H), 3.55-3.65 (m, 1H), 3.65-3.80 (m, 2H), 3.99 (t, J = 9.0 Hz, 1H), 4.20-4.40 (m, 2H), 4.60-4.75 (m, 2H), 4.75-4.90 (m, 1H), 6.10 (t, J = 6.2 Hz, 1H), 7.09 (d, J = 10.8 Hz, 2H).

ESI-MS (*m/z*): 535.4 (M+23), 513.5 (M+1).

Example III: Synthesis of (*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid diprop-2-ynyl ester

The title compound was prepared following the procedure as described in Example I by replacing 1 equiv. of propane-1,3-diol with 2 equiv. of propargyl alcohol.

^{1}H NMR (400 MHz, $CDCl_3$): δ 2.01 (s, 3H), 2.57 (t, *J* = 2.5 Hz, 1H), 3.10-3.20 (m, 4H), 3.25-3.40 (m, 4H), 3.55-3.65 (m, 1H), 3.65-3.75 (m, 2H), 3.99 (t, *J* = 9.0 Hz, 1H), 4.60-4.70 (m, 4H), 4.70-4.80 (m, 1H), 6.05 (t, *J* = 6.0 Hz, 1H), 7.10 (d, *J* = 11.0 Hz, 2H).

ESI-MS (*m/z*): 533.3 (M+23), 511.3 (M+1).

Example IV: Synthesis of (*S*)-*N*-(3-{4-[4-(5,5-Diallyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

The title compound was prepared following the procedure as described above in Example I by replacing propane-1,3-diol with 2,2-Diallyl-propane-1,3-diol.

^{1}H NMR (400 MHz, $CDCl_3$): δ 1.98 (d, *J* = 7.5 Hz, 2H), 2.02 (s, 3H), 2.38 (d, *J* = 7.5 Hz, 2H), 3.00-3.20 (m, 4H), 3.25-3.40 (m, 4H), 3.55-3.65 (m, 1H), 3.65-3.80 (m, 2H), 3.90-4.05 (m, 3H), 4.25-4.40 (m, 2H), 4.70-4.85 (m, 1H), 5.10-5.30 (m, 4H), 5.60-5.75 (m, 1H), 5.75-5.90 (m, 1H), 5.99 (t, *J* = 6.4 Hz, 1H), 7.09 (d, *J* = 10.9 Hz, 2H).

ESI-MS (*m/z*): 577.5 (M+23), 555.4 (M+1).

Example V: Synthesis of (*S*)-*N*-(3-{3,5-Difluoro-4-[4-(8-oxo-7,9-dioxa-8λ^5-phospha-spiro[4.5]dec-2-en-8-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

In a dried round bottomed flask was added Bis(tricyclohexylphosphine)benzylidine ruthenium (IV) chloride (Grubb's catalyst, 1st generation) (30 mg, 0.036 mmol) and dry DCM (20 mL) under nitrogen atmosphere. Compound (200 mg, 0.36 mmol), obtained in Example IV, dissolved in dry DCM (5 mL) was added dropwise at r.t. and reaction mixture was refluxed for 1 h and progress of reaction was monitored by TLC. On completion, solvent was evaporated *in vacuo* and the residue was purified by column chromatography using chloroform:methanol (20:1). The desired product (160 mg, 84%) was obtained as white solid.

^{1}H NMR (400 MHz, $CDCl_3$): δ 2.02 (s, 3H), 2.05-2.15 (m, 2H), 2.50-2.60 (m, 2H), 3.05-3.20 (m, 4H), 3.25-3.40 (m, 4H), 3.55-3.70 (m, 2H), 3.70-3.80 (m, 1H), 3.95-4.05 (m, 3H),

4.40-4.50 (m, 2H), 4.70-4.80 (m, 1H), 5.60-5.70 (m, 2H), 6.00 (t, J = 6.4 Hz, 1H), 7.07 (d, J = 10.8 Hz, 2H).

ESI-MS (*m/z*): 549.4 (M+23), 527.3 (M+1).

Example VI: Synthesis of (*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-2 λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

Step 1: (*S*)-5-Aminomethyl-3-{3,5-difluoro-4-[4-(2-oxo-2 λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-oxazolidin-2-one

A mixture of compound (650 mg, 1.42 mmol), obtained in step 6 of Example I, and triphenylphosphine (490 mg, 1.87 mmol) in THF (10 mL) was stirred at r.t. for 3 h. Water (0.4 mL) was added and the reaction mixture was warmed to 40 °C and stirred at same temperature for 16 h. The reaction mixture was diluted with water (20 mL) and extracted with ethyl acetate (100 mL). The organic layer was washed with brine (50 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The residue was purified by silica gel flash chromatography using chloroform:methanol (9:1) to provide desired product (440 mg, 72%) as off white solid.

ESI-MS (*m/z*): 455.2 (M+23), 434.3 (M+2), 432.9 (M+1).

Step 2: (*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-2 λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

To a solution of compound (400 mg, 0.93 mmol), obtained in step 1, in DCM (20 mL) was added triethyl amine (0.4 mL, 2.79 mmol). The resulting solution was cooled to 0 °C and methyl chloroformate (0.1 mL, 1.3 mmol) was added dropwise. The reaction mixture was stirred at r.t. and progress of the reaction was monitored by TLC. On completion, the reaction mixture was diluted with chloroform (50 mL). The organic layer was washed with water (25 mL), brine (25 mL), dried over anhydrous sodium sulphate and concentrated *in vacuo*. The residue was purified by silica gel flash chromatography using chloroform:methanol (50:1) to provide title compound (380 mg, 84%) as white solid.

^{1}H NMR (400 MHz, $CDCl_3$): δ 1.75-1.85 (m, 1H), 2.10-2.25 (m, 1H), 3.05-3.15 (m, 4H), 3.25-3.35 (m, 4H), 3.45-3.65 (m, 2H), 3.69 (s, 3H), 3.70-3.80 (m, 1H), 3.99 (t, J = 9.0 Hz, 1H), 4.25-4.35 (m, 2H), 4.55-4.65 (m, 2H), 4.70-4.80 (m, 1H), 5.20-5.30 (m, 1H), 7.09 (d, J = 11.0 Hz, 2H),.

ESI-MS (*m/z*): 513.2 (M+23), 491.3 (M+1).

Example VII: Synthesis of (*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

The title compound was prepared following the procedure as described above in Example VI.

^{1}H NMR (400 MHz, $CDCl_3$): δ 2.00-2.45 (m, 3H), 2.54 (dd, *J* = 7.9 and 2.5 Hz, 1H), 3.00-3.20 (m, 4H), 3.20-3.40 (m, 4H), 3.50-3.60 (m, 2H), 3.80-3.60 (m, 4H), 3.99 (t, *J* = 8.9 Hz, 1H), 4.20-4.40 (m, 2H), 4.65-4.80 (m, 3H), 5.10-5.20 (m, 1H), 7.10 (d, *J* = 10.5 Hz, 2H).

ESI-MS (*m/z*): 567.2 (M+39), 551.2 (M+23), 529.3 (M+1).

Example VIII: Synthesis of (*S*)-3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

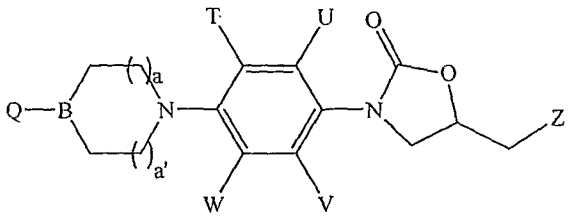
To a solution of compound (200 mg, 0.44 mmol), obtained in step 6 of Example I, in dioxane (25 mL) was added bicyclo[2.2.1]hepta-2,5-diene (0.18 mL, 1.75 mmol) and the resulting solution was stirred at 60 °C for 8 h. The solvent was evaporated and the residue was purified by silica gel flash chromatography using chloroform:methanol (20:1) to provide title compound (138 mg, 65%) as white solid.

^{1}H NMR (400 MHz, $CDCl_3$): δ 1.75-1.85 (m, 1H), 2.10-2.25 (m, 1H), 3.05-3.15 (m, 4H), 3.25-3.35 (m, 4H), 3.89 (dd, *J* = 9.3 and 6.1 Hz, 1H), 4.10 (t, *J* = 9.2 Hz, 1H), 4.25-4.35 (m, 2H), 4.50-4.65 (m, 2H), 4.79 (d, *J* = 4.1 Hz, 2H), 5.00-5.15 (m, 1H), 6.95 (d, *J* = 10.8 Hz, 2H), 7.75 (d, *J* = 1.0 Hz, 1H), 7.77 (d, *J* = 1.0 Hz, 1H).

ESI-MS (*m/z*): 523.3 (M+39), 507.3 (M+23), 485.3 (M+1).

CLAIMS

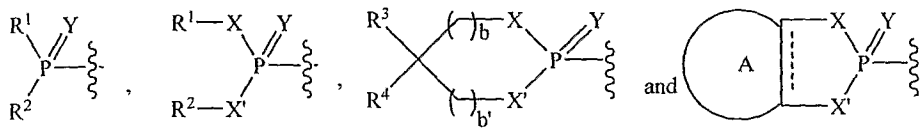
1. A compound of Formula I,



Formula I

its pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof, wherein,

Q is selected from the group consisting of:



P is phosphorus atom;

R^1 and R^2 are independently selected from hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_1-C_{12} alkoxy, C_1-C_6alkoxyC_1-C_6alkyl, C_1-C_6alkoxyC_1-C_6alkoxyC_1-C_3alkyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, -$(CH_2)_n$-cycloalkyl, -$(CH_2)_n$-heterocyclyl, -$(CH_2)_n$-aryl or -$(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a; or
R^1 and R^2 together form a 5 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a;

R^3 and R^4 are same or different and can independently represent hydrogen, halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_1-C_{12}alkoxy, C_{1-12} haloalkoxy, C_1-C_6alkoxyC_1-C_6alkyl, C_1-C_6alkoxyC_1-C_6alkoxyC_1-C_3alkyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, -$(CH_2)_n$-cycloalkyl, -$(CH_2)_n$-heterocyclyl, -$(CH_2)_n$-aryl, -$(CH_2)_n$-heteroaryl, -$(CO)R^6$, -$(CO)NR^6R^7$, -$O(CO)R^6$, -$O(CO)NR^6R^7$, -$COOR^6$, -OR^6, -SR^6, -NO_2, -NR^6R^7, -$N(R^6)(CO)R^b$, -$N(R^6)(CO)OR^7$, -$N(R^6)(CO)NR^6R^7$, each of which may be optionally substituted at any available position by one or more substituents R^a; or

R^3 and R^4 together form 3 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a ;

X and X' are same or different and can independently represent O, S, -NH or $-NR^b$;

Y is O, S, –NH or-NR^b ;

ring A is selected from the group consisting of C_3-C_{20} cycloalkyl, heterocyclyl, aryl and heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a ;

' ------ ' is independently a single bond or is absent;

B is selected from the group consisting of CH and N;

Z is halogen, azido, isothiocyanate, thioalcohol, aryl, nitro, cyano, heteroaryl, OR^5, NHR^5 or $N(R^5)_2$ where R^5 is hydrogen, alkyl, acyl, thioacyl, C_{1-6} alkoxycarbonyl, C_{1-6} alkoxythiocarbonyl, C_{3-6} cycloalkoxycarbonyl ,C_{2-6} alkenyloxycarbonyl, C_{2-6} alkenyloxythiocarbonyl, C_{2-6} alkenylcarbonyl, aryl, aryloxycarbonyl, aryloxythiocarbonyl, heteroaryloxycarbonyl, heteroaryl, heteroarylcarbonyl, heteroarylthiocarbonyl, heteroaryloxythiocarbonyl, each of which may be optionally substituted at any available position by one or more substituents R^a;

T, U, V and W are same or different and independently represent hydrogen or halogen;

R^6 and R^7 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted with halogen, hydroxyl, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} alkoxy, C_{1-12} alkylcarbonyl, C_{1-12} alkoxycarbonyl, C_{3-8} cycloalkyl, C_{1-12} haloalkyl, C_{1-12} haloalkoxy, C_{2-12} haloalkenyl, aryl, heterocyclyl, heteroaryl, $(CH_2)_n$-aryl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-heteroaryl, $(CH_2)_n$-cycloalkyl, CN, $-OR^8$, $-NO_2$, $-NR^8R^9$, $N(R^8)(CO)R^9$, $N(R^8)(CO)OR^9$, $N(R^8)(CO)NR^8R^9$, $-C(=L)R^8$ (wherein L is O or S), $-(CO)NR^8R^9$, $-O(CO)R^8$, $-O(CO)NR^8R^9$, $-COOR^8$, $-SR^8$, $S(O)_mR^8$, $SO_2NR^8R^9$; SO_3H, $NHSO_2R^8$, $P(O)_dR^8R^9$; or R^8 and R^9 may be joined together along with the nitrogen atom to

which they are attached to form a heterocyclic or heteroaryl ring which may additionally contain from one to three heteroatoms independently selected from O, S and N, the ring formed may optionally be substituted with one or more substituents selected from R^a;

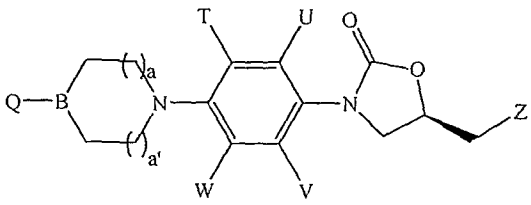
R^8 and R^9 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted with R^a;

R^a is selected from the group consisting of hydrogen, halogen, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_1-C_{12}alkoxy, C_{1-12} haloalkyl, C_{1-12} haloalkoxy, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{1-12} haloalkoxy, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl, $(CH_2)_n$-heteroaryl, C_{1-12} alkylcarbonyl, C_{1-12}alkoxycarbonyl, CN, $-OR^6$, $-NO_2$, $-NR^6R^7$, $N(R^6)(CO)R^7$, $N(R^6)(CO)OR^7$, $N(R^6)(CO)NR^6R^7$, $-C(=L)R^6$ (wherein L is O or S), $-(CO)NR^6R^7$, $-O(CO)R^6$, $-O(CO)NR^6R^7$, $-COOR^6$, $-SR^6$, $S(O)_mR^6$, $SO_2NR^6R^7$; SO_3H, $NHSO_2R^6$ and $P(O)_dR^6R^7$;

R^b is selected from the group consisting of hydrogen, oxo, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{2-12} haloalkenyl, C_{2-12} haloalkynyl, C_{3-20} cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl and $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a;

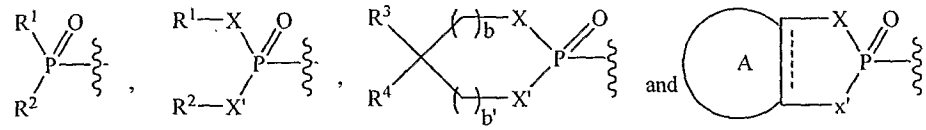
a and a′ are same or different and independently represent 0,1,2,3 or 4;
b and b′ are same or different and independently represent 0,1,2,3 or 4;
m can be 1 or 2;
n can be 1, 2, 3 or 4;
d can be 1, 2 or 3.

2. The compound according to claim 1 having the Formula Ia, wherein



Formula Ia

T, U, V, W, Z, B, Q are as defined in claim 1; its pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers including *R* and *S* isomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

3. The compound according to claim 1, wherein Q is selected from the group comprising of:  ; wherein R^1, R^2, R^3 and R^4 are as defined in claim 1; X and X' are same or different and can be O or NH.

4. The compound according to claim 1, wherein R^1 and R^2 are independently selected from the group consisting of hydrogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_1-C_6alkoxyC_1-C_6alkyl, C_{3-20}cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl or $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a as defined in claim 1 or R^1 and R^2 together form a 5 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a as defined in claim 1.

5. The compound according to claim 1, wherein R^3 and R^4 are independently selected from the group consisting hydrogen, halogen, C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} haloalkyl, C_{3-20}cycloalkyl, heterocyclyl, aryl, heteroaryl, $(CH_2)_n$-cycloalkyl, $(CH_2)_n$-heterocyclyl, $(CH_2)_n$-aryl, $(CH_2)_n$-heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a as defined in claim 1 or R^3 and R^4 together form a 3 to 10 membered monocyclic ring, partially unsaturated or saturated, which may contain from one to three heteroatoms independently selected from O, S & N, optionally substituted at any available position by one or more substituents R^a as defined in claim 1.

6. The compound according to claim 1, wherein Z is selected from heteroaryl, OR^5, NHR^5 or $N(R^5)_2$ where R^5 is selected from hydrogen, alkyl, acyl, thioacyl, C_{1-6} alkoxycarbonyl, aryl, heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R^a as defined in claim 1.

7. The compound according to claim 1, wherein B represents N; T, U, V and W can be same or different and represent F or H.

8. The compound according to claim 1, wherein ring A represents aryl or heteroaryl, each of which may be optionally substituted at any available position by one or more substituents R_a as defined in claim 1.

9. The compound according to claim 1, wherein both a and a′ are 1 and b and b′ independently represent 1 or 2.

10. A compound which is selected from the group comprising of:

(*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid bis-(2-methoxy-ethyl) ester

(*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid diprop-2-ynyl ester

(*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid dibenzyl ester

(*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid bis-(tetrahydro-furan-2-ylmethyl) ester

(*S*)-(4-{4-[5-(Acetylamino-methyl)-2-oxo-oxazolidin-3-yl]-2,6-difluoro-phenyl}-piperazin-1-yl)-phosphonic acid diphenyl ester

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5-methylene-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-4,7-dihydro-2λ^5-[1,3,2]dioxaphosphepin-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(3-oxo-1,5-dihydro-3λ^5-benzo[e][1,3,2]dioxaphosphepin-3-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5,5,6,6-tetrafluoro-2-oxo-2λ^5-[1,3,2]dioxaphosphepan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphepan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5-hydroxymethyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]oxazaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{4-[4-(5-Benzyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(6-oxo-5,7-dioxa-6λ^5-phospha-spiro[2.5]oct-6-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{4-[4-(4,6-Dimethyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{4-[4-(5,5-Diallyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(8-oxo-7,9-dioxa-8λ^5-phospha-spiro[4.5]dec-2-en-8-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-5,5-di-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

(*S*)-*N*-(3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)-(3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

(*S*)-(3-{4-[4-(5,5-Diallyl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

(*S*)-(3-{3,5-Difluoro-4-[4-(8-oxo-7,9-dioxa-8λ^5-phospha-spiro[4.5]dec-2-en-8-yl)-piperazin-1-yl]- phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

(*S*)-(3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

(R)-3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

(*S*)-(4-{2,6-Difluoro-4-[5-(methoxycarbonylamino-methyl)-2-oxo-oxazolidin-3-yl]-phenyl}-piperazin-1-yl)-phosphonic acid diprop-2-ynyl ester

(*S*)-*N*-(3-{3,5-Difluoro-4-[4-(5-morpholin-4-yl-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(R)-3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

(*R*)-3-{3,5-Difluoro-4-[4-(2-oxo-5-prop-2-ynyl-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-[1,2,3]triazol-1-ylmethyl-oxazolidin-2-one

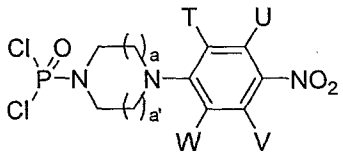
(*R*)-3-{4-[4-(Diphenyl-phosphinoyl)-piperazin-1-yl]-3,5-difluoro-phenyl}-5-(isoxazol-3-yloxymethyl)-oxazolidin-2-one

(*R*)-3-{3,5-Difluoro-4-[4-(2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-5-(isoxazol-3-yloxymethyl)-oxazolidin-2-one

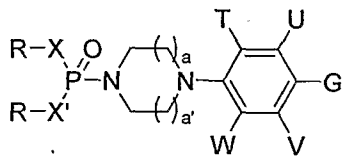
(*S*)-N-(3-{4-[4-(5-Chloro-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-3,5-difluoro-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-acetamide

(*S*)- (3-{3,5-Difluoro-4-[4-(5-fluoro-2-oxo-2λ^5-[1,3,2]dioxaphosphinan-2-yl)-piperazin-1-yl]-phenyl}-2-oxo-oxazolidin-5-ylmethyl)-carbamic acid methyl ester

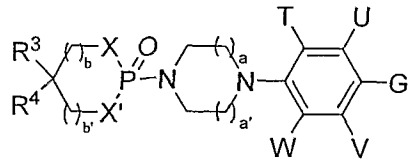
11. A compound which is selected from the group comprising of:



where T, U, V, W are as defined in any of the preceeding claims ; a and a′ are both 1



where G is $-NO_2$, $-NH_2$ or -NHCbz ; R is either R^1 or R^2; T, U, V, W, R^1, R^2, X and X′ are as defined in any of the preceeding claims; a and a′ are both 1



where G is $-NO_2$, $-NH_2$ or -NHCbz ; T, U, V, W, R^3, R^4, X and X′ are as defined in any of the preceeding claims; a, a′, b and b′ each are 1.

12. A pharmaceutical composition comprising a therapeutically effective amount of a compound of Formula I according to claim 1 or its pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers, polymorphs, prodrugs, metabolites, salts or solvates thereof.

13. A method for the prophylaxis, amelioration and/or treatment of bacterial infections in a subject in need thereof, that comprises administering a therapeutically effective amount of compound of Formula I according to claim 1.

14. A method according to claim 13, wherein the bacterial infection is caused by multi drug resistant Staphylococcus spp., Streptococcus spp., Enterococcus spp., Bacterioides spp., Clostridia spp., *H. influenza*, Moraxella Spp., as well as acid-fast organisms such as *Mycobacterium tuberculosis* and the like.

15. Use of a compound of Formula I according to claim 1 or its pharmaceutically acceptable derivatives, tautomeric forms, stereoisomers, polymorphs, prodrugs, metabolites, salts or solvates thereof, for the manufacture of a medicament for the prophylaxis, amelioration and/or treatment of bacterial infections in a subject in need thereof.

16. Use according to claim 15, wherein the compound is in combination with other therapeutic agents.

17. Use according to claim 15 and 16, wherein the medicament is administered via oral, buccal, pulmonary, topical, subcutaneous, intramuscular, intravenous, transdermal, ocular (ophthalmic), by inhalation, intranasal, transmucosal, implant or rectal route.

18. The compounds of Formula I, processes, methods and compositions as described and illustrated herein.