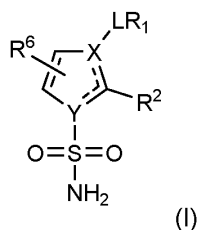


## CLAIMS

1. A compound of formula (I) or a pharmaceutically acceptable salt thereof:



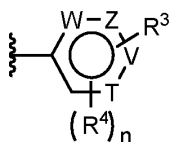
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wherein

one of X and Y is N and the other is C;

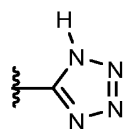
L is a linker group selected from  $-(CH_2)_a-Q-(CH_2)_b-$  in which, Q is selected from the group comprising: O, NH,  $SO_2$ , C=C, and  $C\equiv C$  or Q is absent;

- 10  $R^1$  is selected from a ring:



in which: (a) all of T, V, W and Z are C, or (b) T is C and one or two of V, W and Z is N and the remainder of them is/are C, or (c) T is absent, and one of V, W and Z is C and the other two are N; or  $R^1$  is a mono- or bicyclic ring substituted by one  $R^3$  group and 0, 1, or 2  $R^4$

- 15 groups;



$R^2$  is  $-C(O)OH$ ,  $-C(O)OM$  or ; wherein M is a group 1 cation;

$R^3$  is either absent or is selected as appropriate to satisfy valence requirements from the group comprising: H, halo, CN, oxo,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy,  $C_{2-6}$  alkenyl,  $C_{2-6}$  alkynyl,  $C_{3-8}$  cycloalkyl,  $-(CH_2)_d$ -aryl,  $-(CH_2)_d$ -heteroaryl,  $-(CH_2)_e$ -heterocyclyl,  $-OR^5$ ,  $-N(R^5)_2$ ,  $-SO_2R^5$ , -

SO<sub>2</sub>N(R<sup>5</sup>)<sub>2</sub>, -NHSO<sub>2</sub>R<sup>7</sup>, -NHCOR<sup>5</sup>, -CON(R<sup>5</sup>)<sub>2</sub> and -COR<sup>5</sup> wherein each of the above substituents apart from H may themselves be optionally substituted where chemically possible with one, two or three groups independently selected at each occurrence from the group comprising: halo, -N(R<sup>5</sup>)<sub>2</sub>, -OH, -C(=O)C<sub>1-6</sub> alkyl, -SO<sub>2</sub>N(C<sub>1-6</sub> alkyl)<sub>2</sub>, -(CH<sub>2</sub>)<sub>h</sub>OR<sup>5</sup>, C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> alkynyl, C<sub>3-8</sub> cycloalkyl, and C<sub>3-8</sub> cycloalkenyl;

R<sup>4</sup> and R<sup>5</sup> are independently selected at each occurrence from the group comprising: H, halo, -OH, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> alkynyl, C<sub>3-8</sub> cycloalkyl, C<sub>3-8</sub> cycloalkenyl, -(CH<sub>2</sub>)<sub>r</sub>-aryl, -(CH<sub>2</sub>)<sub>d</sub>-heteroaryl, -(CH<sub>2</sub>)<sub>g</sub>-heterocyclyl; wherein each of R<sup>4</sup> and R<sup>5</sup> may themselves be optionally substituted where chemically possible with one, two or three groups independently selected at each occurrence from the group comprising: halo, -NH<sub>2</sub>, -N(C<sub>1-4</sub> alkyl)<sub>2</sub>, -OH, -SO<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub>, -NHC(=O)OC<sub>1-6</sub> alkyl, and -C(=O)OC<sub>1-6</sub> alkyl;

R<sup>6</sup> is selected from the group comprising: H, C<sub>1-4</sub> alkyl, and C<sub>1-4</sub> haloalkyl;

R<sup>7</sup> is selected from the group comprising: H, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> haloalkyl, C<sub>1-4</sub> alkyl amine, C<sub>3-8</sub> cycloalkyl and aryl, and 5 to 10 membered heteroaryl;

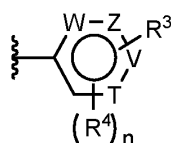
a, b, d, e, f, g and h are independently selected as integers from 0 to 3;

and n is an integer selected from: 0 to 2; and

-- represents a single or a double bond as required to satisfy valence requirements.

2. A compound according to claim 1, wherein Y is N and X is C.

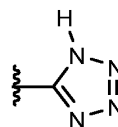
3. A compound according to claim 1 or 2, wherein R<sup>1</sup> is



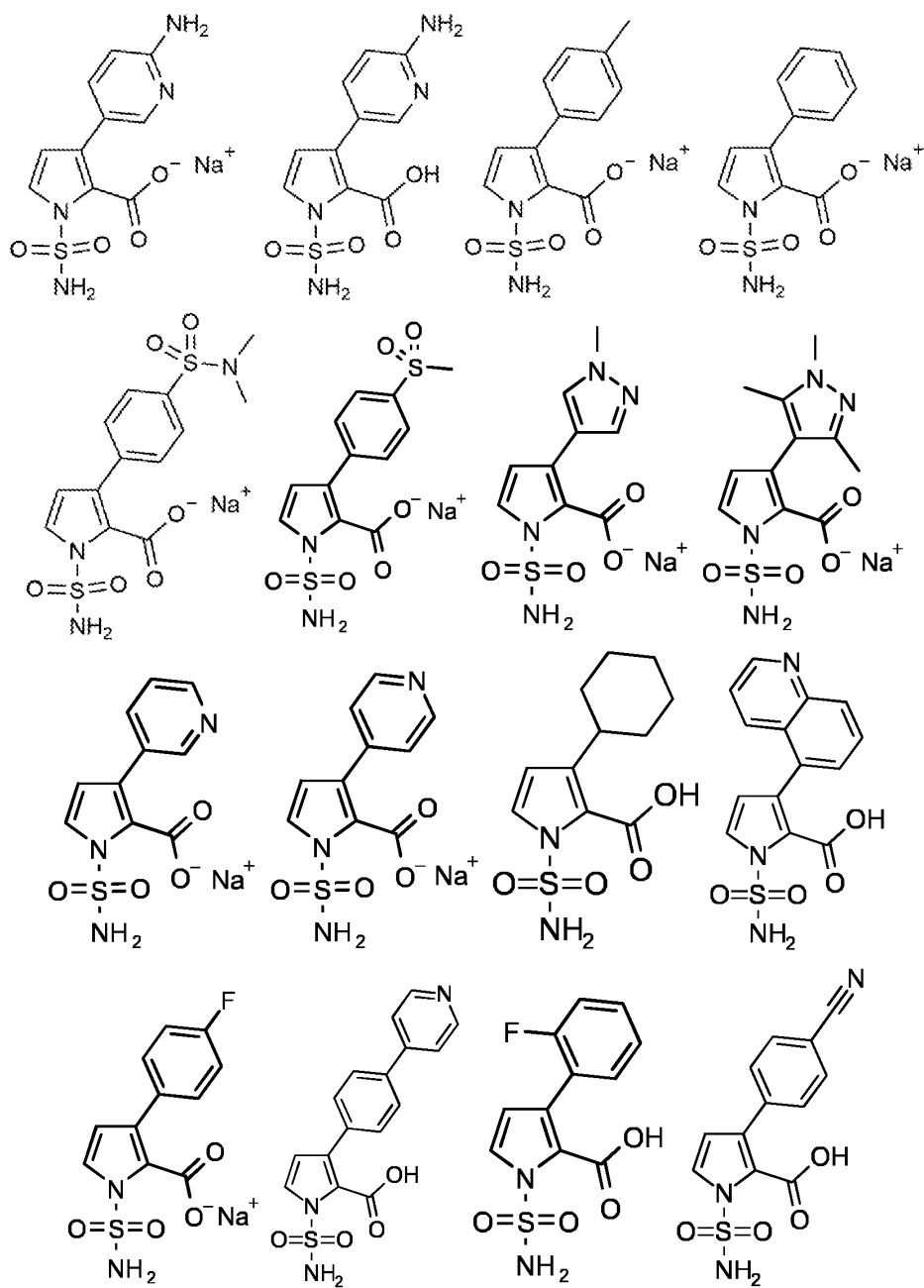
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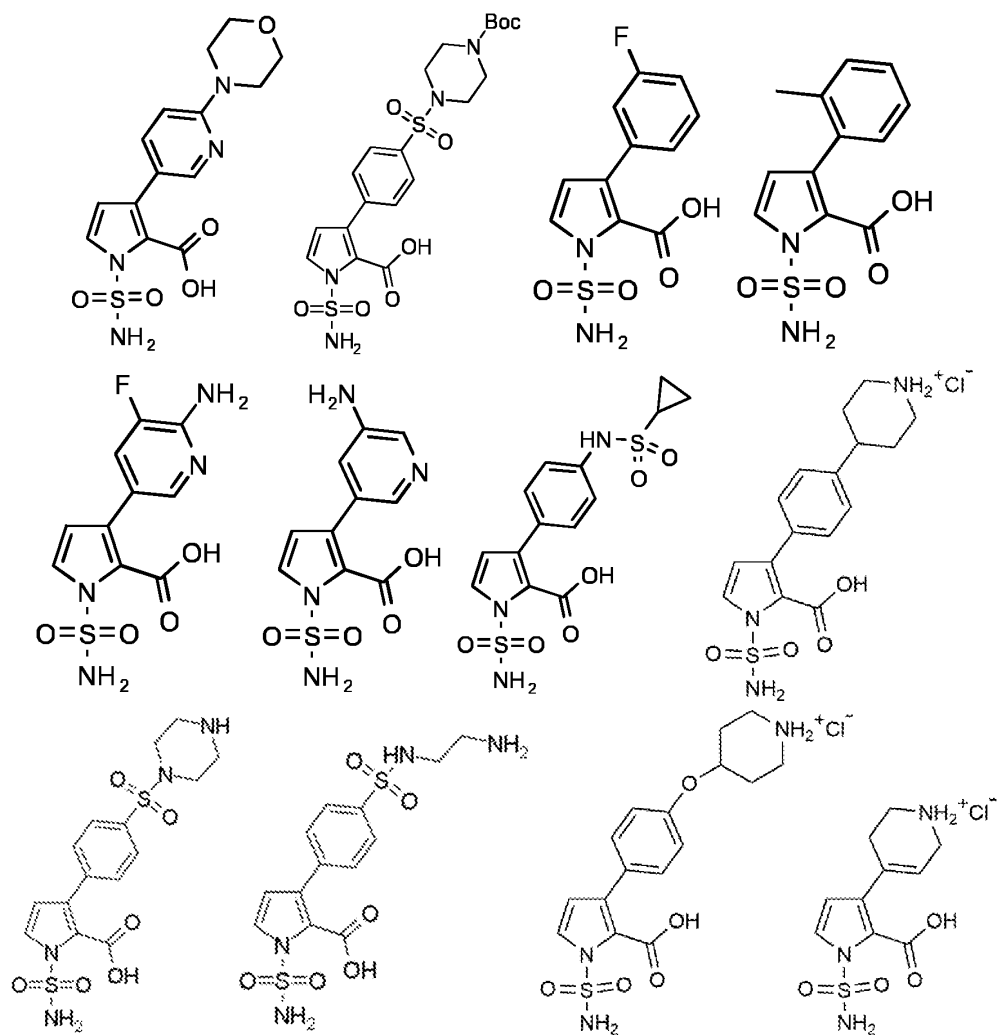
in which: (a) all of T, V, W and Z are C, or (b) T is C and one or two of V, W and Z is N and the remainder of them is/are C, or (c) T is absent, and one of V, W and Z is C and the other two are N; and n is 1 or 2.

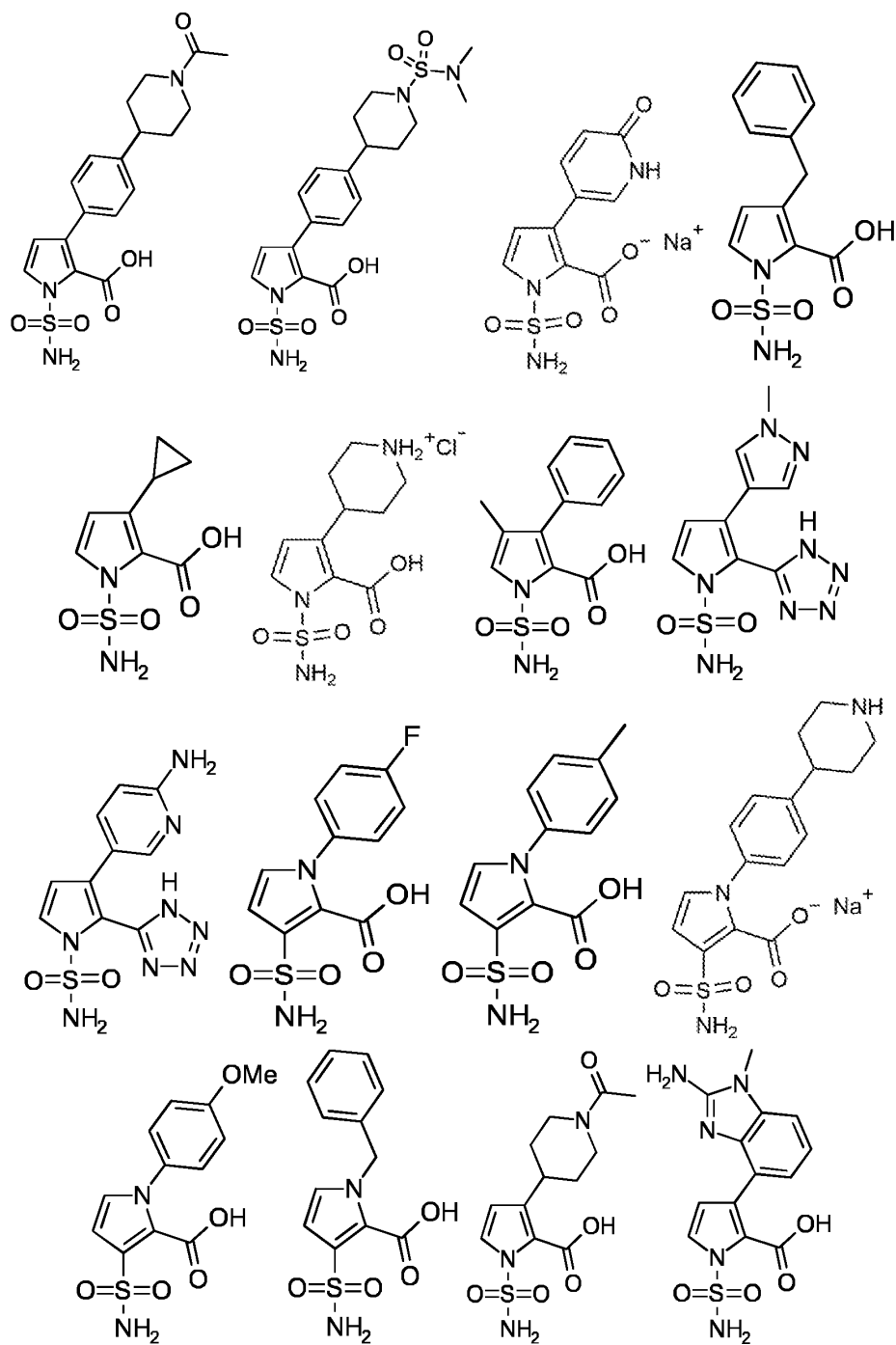
4. A compound according to any one of claims 1 to 3, wherein R<sup>2</sup> is -C(O)OH or -C(O)OM.

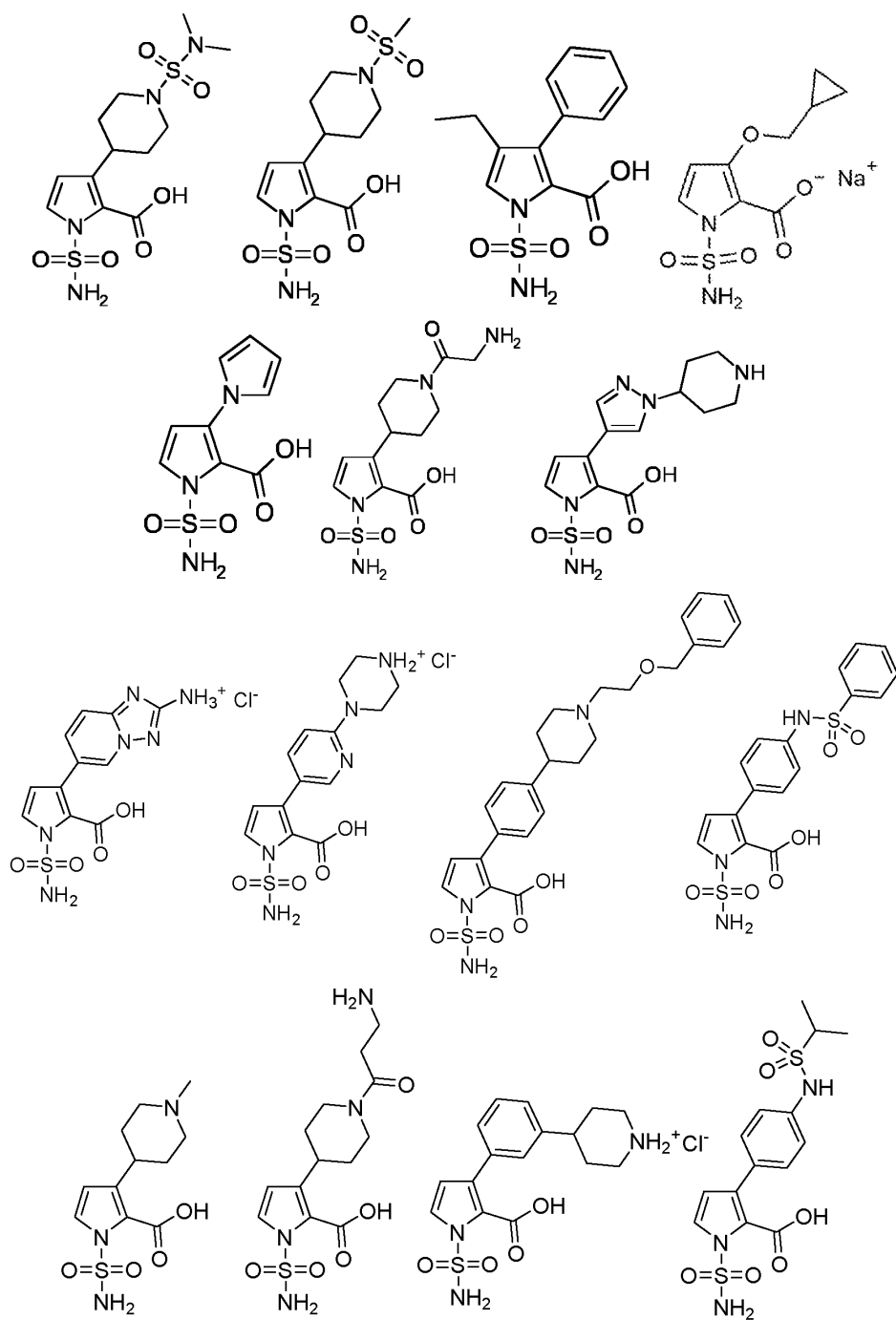


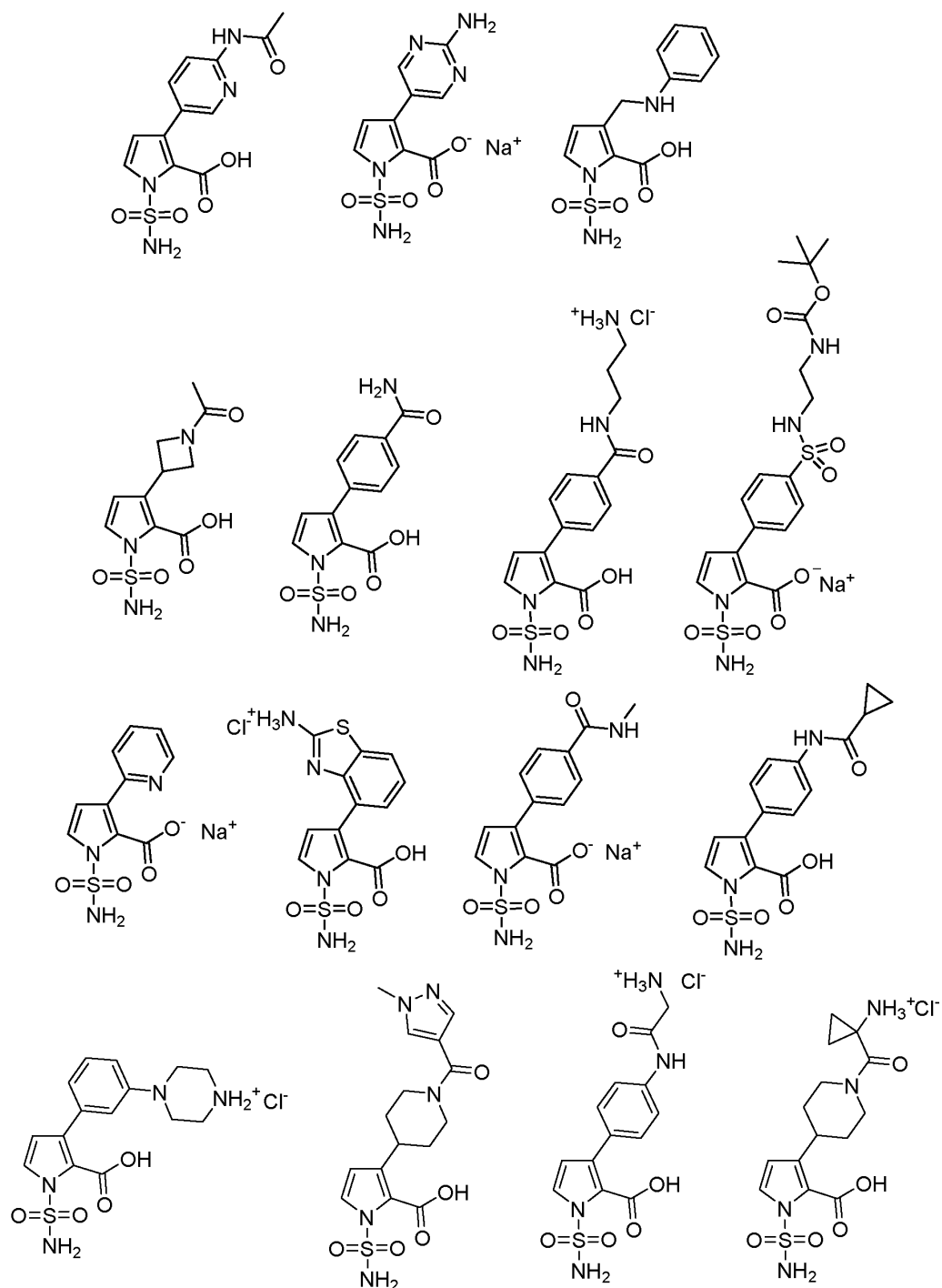
5. A compound according to any of claims 1 to 3, wherein R<sup>2</sup> is
  
6. A compound as claimed in any preceding claim, wherein R<sup>3</sup> is either absent or is selected as appropriate to satisfy valence requirements from the group comprising: halo, CN, oxo, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, 3 to 10 membered heterocyclyl, -OR<sup>5</sup>, -N(R<sup>5</sup>)<sub>2</sub>, -SO<sub>2</sub>R<sup>5</sup>, -SO<sub>2</sub>N(R<sup>5</sup>)<sub>2</sub>,  
 5 -NHSO<sub>2</sub>R<sup>7</sup>, and -COR<sup>5</sup> wherein each of the above substituents (preferably 3 to 10 membered heterocyclyl) may themselves be optionally substituted where chemically possible with one, two or three groups (preferably 1 or 2 groups) independently selected at each occurrence from the group comprising: halo, -C(=O)C<sub>1-6</sub> alkyl or -SO<sub>2</sub>N(C<sub>1-6</sub> alkyl)<sub>2</sub>.
  
7. A compound according to claim 6, wherein R<sup>3</sup> is substituted or unsubstituted aryl or  
 10 heterocyclyl, optionally R<sup>3</sup> is a substituted or unsubstituted phenyl, pyridyl, or pyrazole, preferably wherein the pyridyl group is a 3-pyridyl or 4-pyridyl group.
  
8. A compound as claimed in any preceding claim, wherein R<sup>3</sup> is selected from: -NH<sub>2</sub>, methyl, oxo, -SO<sub>2</sub>Me, -SO<sub>2</sub>N(Me)<sub>2</sub>, and 4-piperidinyl.
  
9. A compound as claimed in any preceding claim, wherein R<sup>4</sup> is selected at each  
 15 occurrence from the group comprising: H, halo, substituted or unsubstituted C<sub>1-6</sub> alkyl, and substituted or unsubstituted C<sub>3-8</sub> cycloalkyl.
  
10. A compound as claimed in claim 9, wherein R<sup>4</sup> is independently selected at each occurrence from H, fluoro and Me.
  
11. A compound as claimed in any preceding claim, wherein R<sup>5</sup> is independently selected  
 20 at each occurrence from the group comprising: H, -OH, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, 3 to 10 membered heterocyclyl, C<sub>3-8</sub> cycloalkyl; wherein each R<sup>5</sup> may themselves be optionally substituted where chemically possible with one or two groups independently selected at each occurrence from the group comprising: -NH<sub>2</sub>, -OH, -SO<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub>, -NHC(=O)O*tert*-butyl and -C(=O)O*tert*-butyl.
  
- 25 12. A compound as claimed in claim 11, wherein R<sup>5</sup> is H.
  
13. A compound as claimed in claim 1, wherein the compound is selected from:

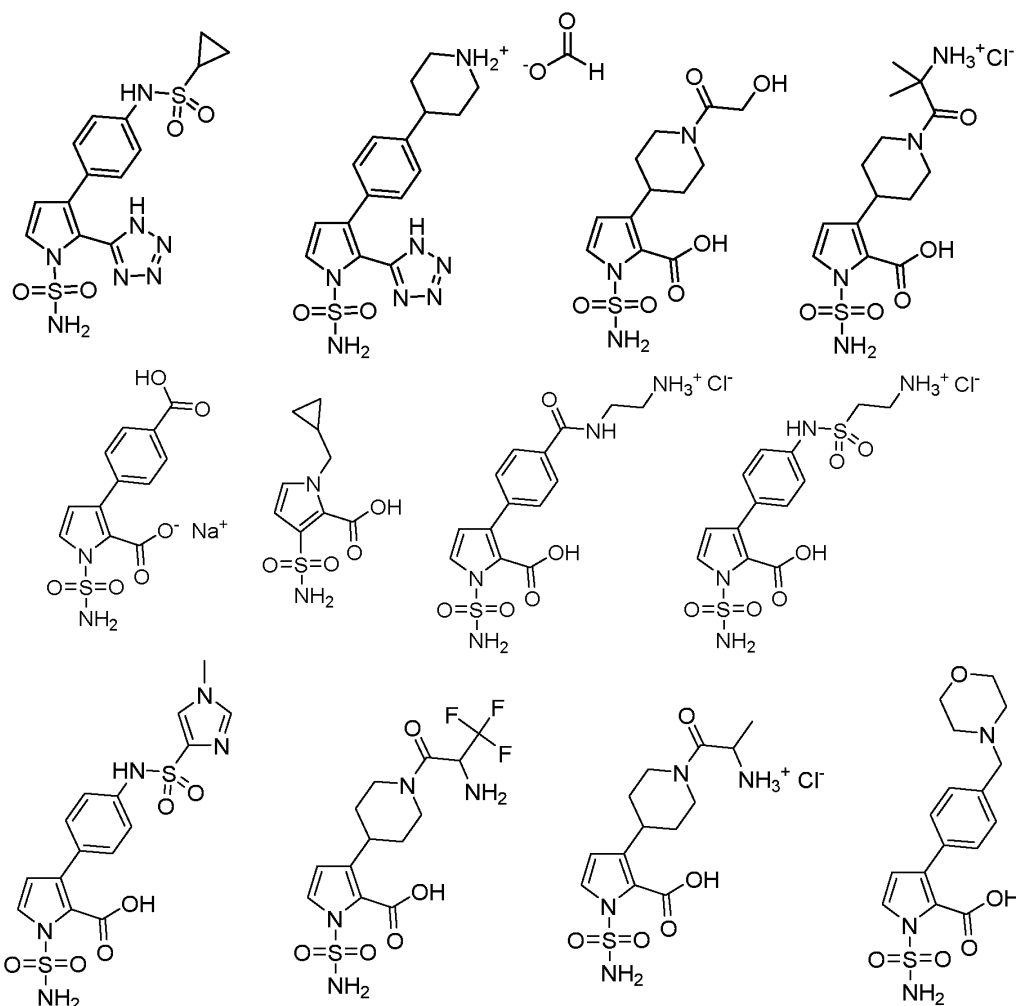












14. A pharmaceutical composition which comprises a compound of Formula (I) as claimed  
 5 in any preceding claim, or a pharmaceutically acceptable salt, hydrate or solvate thereof, in association with one or more pharmaceutically acceptable excipients.

15. A compound of Formula (I) as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof, or a formulation as claimed in claim 14, for use in the inhibition of metallo-beta-lactamase activity.

- 10 16. A compound of Formula (I) as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof, or a composition as claimed in claim 14, for use in the treatment of a disease or disorder in which metallo-beta-lactamase activity is implicated.

17. A compound of Formula (I) as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof, for use in a method of treating a disease or disorder caused by aerobic or anaerobic Gram-positive, or aerobic or anaerobic Gram-negative bacteria.
- 5 18. The compound for use of claim 17 wherein the disease or disorder is caused by metallo-beta-lactamase producing Gram-positive bacteria.
19. The compound for use of claim 17 or 18 wherein the disease or disorder is selected from: pneumonia, respiratory tract infections, urinary tract infections, intra-abdominal infections, skin and soft tissue infections, bloodstream infections, septicaemia, intra- and post-partum infections, prosthetic joint infections, endocarditis, acute bacterial meningitis and febrile neutropenia.
- 10 20. The compound for use of claim 19 in the treatment of a disease or disorder selected from: community acquired pneumonia, nosocomial pneumonia (hospital-acquired/ventilator-acquired), respiratory tract infections associated with cystic fibrosis, non-cystic fibrosis bronchiectasis, COPD, urinary tract infection, intra-abdominal infections, skin and soft tissue infection, bacteraemia, septicaemia, intra- and post-partum infections, prosthetic joint infections, endocarditis, acute bacterial meningitis and febrile neutropenia.
- 15 21. The compound for use of claim 20 in the treatment of a disease or disorder selected from: community acquired pneumonia, nosocomial pneumonia (hospital-acquired/ventilator-acquired), respiratory tract infections associated with cystic fibrosis, non-cystic fibrosis bronchiectasis, COPD, urinary tract infection, intra-abdominal infections, skin and soft tissue infection, bacteraemia and septicaemia.
- 20 22. A compound of Formula (I) as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof, or a formulation as claimed in claim 14, for use in the treatment of a bacterial infection.
- 25 23. A compound of Formula (I) as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof, or a formulation as claimed in claim 14, in combination with an antibacterial agent, for use in the treatment of a bacterial infection.
24. A compound as claimed in claim 23, wherein the compound and the antibacterial agent are presented in the same dosage forms.
- 30

25. A compound as claimed in claim 23 or 24, wherein the antibacterial agent is a carbapenem, and preferably the carbapenems is selected from the group comprising: meropenem, faropenem, imipenem, ertapenem, doripenem, panipenem/betamipron and biapenem, razupenem, tebipenem, lenapenem and tomopenem.
- 5 26. A compound as claimed in claim 25, wherein the antibacterial agent is meropenem.
27. A compound as claimed in any of claims 22 to 26, wherein the bacterial infection is caused by bacteria from one or more of the following families; *Streptococcus*, *Acinetobacter*, *Staphylococcus*, *Clostridium*, *Pseudomonas*, *Escherichia*, *Salmonella*, *Klebsiella*, *Legionella*, *Neisseria*, *Enterococcus*, *Enterobacter*, *Serratia*,  
10 *Stenotrophomonas*, *Aeromonas*, *Mycobacterium*, *Morganella*, *Yersinia*, *Pasteurella*, *Haemophilus*, *Citrobacter*, *Burkholderia*, *Brucella*, or *Moraxella*.
28. A method for the prevention or treatment of bacterial infection in a patient in need of such treatment, said method comprising administering to said patient a therapeutically effective amount of a combination of an antibacterial agent with a compound of Formula (I)  
15 as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof; or administering to said patient a therapeutically effective amount of an antibacterial agent in combination with a pharmaceutical composition, as claimed in claim 14, containing a compound of Formula (I) or a pharmaceutically acceptable salt, hydrate or solvate thereof.
29. A method for the prevention or treatment of a disease or disorder, said method  
20 comprising administering to a patient in need of such treatment a therapeutically effective amount of a combination of an antibacterial agent with a compound of Formula (I) as claimed in any of claims 1 to 13, or a pharmaceutically acceptable salt, hydrate or solvate thereof; or administering to said patient a therapeutically effective amount of an antibacterial agent in combination with a pharmaceutical composition as claimed claim 14, containing a  
25 compound of Formula (I) or a pharmaceutically acceptable salt, hydrate or solvate thereof.
30. The method of claim 29, wherein the disease or disorder is caused by aerobic or anaerobic Gram-positive, or aerobic or anaerobic Gram-negative bacteria.
31. The method of claim 30, wherein the disease or disorder is caused by metallo-beta-lactamase producing Gram-positive bacteria.
- 30 32. The method of claim 30 or 31, wherein the disease or disorder is selected from: pneumonia, respiratory tract infections, urinary tract infections, intra-abdominal infections,

skin and soft tissue infections, bloodstream infections, septicaemia, intra- and post-partum infections, prosthetic joint infections, endocarditis, acute bacterial meningitis and febrile neutropenia.

- 5 33. The method of claim 32, wherein the disease or disorder is selected from: community acquired pneumonia, nosocomial pneumonia (hospital-acquired/ventilator-acquired), respiratory tract infections associated with cystic fibrosis, non-cystic fibrosis bronchiectasis, COPD, urinary tract infection, intra-abdominal infections, skin and soft tissue infection, bacteraemia, septicaemia, intra- and post-partum infections, prosthetic joint infections, endocarditis, acute bacterial meningitis and febrile neutropenia.
- 10 34. The method of claim 33, wherein the disease or disorder is selected from: community acquired pneumonia, nosocomial pneumonia (hospital-acquired/ventilator-acquired), respiratory tract infections associated with cystic fibrosis, non-cystic fibrosis bronchiectasis, COPD, urinary tract infection, intra-abdominal infections, skin and soft tissue infection, bacteraemia and septicaemia.

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