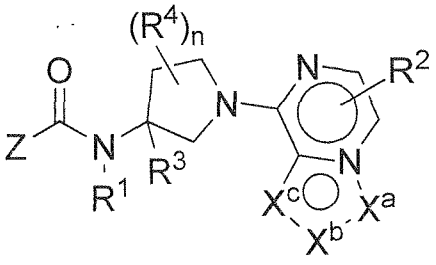
BRIEF SUMMARY ~~OF THE INVENTION~~

[0016] The present ~~invention~~ disclosure provides, in one aspect, compounds having formula I,



(I)

or pharmaceutically acceptable salts, hydrates or N-oxides thereof. The various groups (e.g., R^1, R^2, R^3, R^4, Z, X^a, X^b, X^c and the subscript n) are described in the Detailed Description of the Invention.

[0017] The compounds provided herein are useful for binding to CXCR7, and treating diseases that are dependent, at least in part, on CXCR7 activity. Accordingly, the present ~~invention~~ disclosure provides in ~~further~~ another aspects~~,~~ a pharmaceutical compositions~~~~ containing one or more of the above-noted compounds in admixture with a pharmaceutically acceptable excipient.

[0018] ~~In still another aspect, t~~The present ~~invention~~ disclosure also provides methods for treating various diseases, discussed further herein, comprising administering to a subject in need to such treatment a therapeutically effective amount of a compound of the above formula for a period of time sufficient to treat the disease. In another aspect, the present disclosure provides a compound as defined herein for use in treating a disease or disorder in a mammal. In another aspect, the present disclosure provides use of a compound as defined herein in the manufacture of a medicament for the treatment of a disease or disorder selected from the group consisting of cancer, inflammation and neural or progenitor/stem cell disorders.

[0019] ~~In yet another aspect, t~~The present ~~invention~~ disclosure also provides methods of diagnosing disease in an individual. In these methods, the compounds provided herein are administered in labeled form to a subject, followed by diagnostic imaging to determine the presence or absence of CXCR7. ~~In a related aspect, a~~The method of diagnosing disease ~~is~~ may be carried out by contacting a tissue or blood sample with a labeled compound as

provided herein and determining the presence, absence, or amount of CXCR7 in the sample. In another aspect, the present disclosure provides a method for imaging a tumor, organ, or tissue, said method comprising detecting a radiolabeled or detectable form of a compound as defind herein in a subject who had been administered the compound to determine where the compound is concentrated in the subject. In another aspect, the present disclosure provides a method for detecting elevated levels of CXCR7 in a sample, said method comprising (a) contacting a sample suspected of having elevated levels of CXCR7 with a radiolabeled or detectable form of a compound as defined herein; (b) determining a level of compound that is bound to CXCR7 present in the sample to determine the level of CXCR7 present in the sample; and (c) comparing the level determined in step (b) with a control sample to determine if elevated levels of CXCR7 are present in the sample.

[0020] In some embodiments, an amount of a chemotherapeutic agent or radiation is administered to the subject prior to, subsequent to or in combination with the compounds of the present ~~invention~~disclosure. In some embodiments, the amount is sub-therapeutic when the chemotherapeutic agent or radiation is administered alone.

[0020a] In another aspect, the present disclosure provides an *in vitro* method of inhibiting the binding of chemokines I-TAC or SDF-1 to a CXCR7 receptor, comprising contacting a compound as defined herein with a cell that expresses the CXCR7 receptor for a time sufficient to inhibit the binding of the chemokines to the CXCR7 receptor.

17. The compound of claim **1**, selected from the compounds of the Examples.

18. The compound of claim **1**, selected from those in Table 1.

19. A pharmaceutical composition comprising a compound of claim **1** and a pharmaceutically acceptable excipient.

20. The pharmaceutical composition of claim **19**, wherein the compound is a compound of Table 1.

21. A compound of claim 1 for use in ~~method of~~ treating a disease or disorder in a mammal~~, said method comprising administering to said subject a therapeutically effective amount of a compound of claim 1, for a period of time sufficient to treat said disease or disorder~~.

22. The ~~method~~ compound of claim **21**, wherein the compound is a compound of Table 1.

23. The ~~method~~ compound of claim **21**, wherein said disease or disorder is selected from the group consisting of cancer, inflammation and neural or progenitor/stem cell disorders.

24. An *in vitro* method of inhibiting the binding of chemokines I-TAC or SDF-1 to a CXCR7 receptor, comprising contacting a compound of claim **1** with a cell that expresses the CXCR7 receptor for a time sufficient to inhibit the binding of the chemokines to the CXCR7 receptor.

25. The *in vitro* method of claim **24**, wherein the compound is a compound of Table 1.

26. A method for imaging a tumor, organ, or tissue, said method comprising:

~~(a) administering to a subject in need of such imaging, a radiolabeled or detectable form of a compound of any of claims 1 to 15 ; and~~

~~(b)~~ detecting a radiolabeled or detectable form of a compound of any of claims 1 to 15 in a subject who had been administered ~~said~~ compound to determine where said compound is concentrated in said subject.

27. A method in accordance with claim **26**, wherein said compound is radiolabeled.

28. A method for detecting elevated levels of CXCR7 in a sample, said method comprising:

(a) contacting a sample suspected of having elevated levels of CXCR7 with a radiolabeled or detectable form of a compound of any of claims **1** to **15** ;

(b) determining a level of compound that is bound to CXCR7 present in said sample to determine the level of CXCR7 present in said sample; and

(c) comparing the level determined in step (b) with a control sample to determine if elevated levels of CXCR7 are present in said sample.

29. A method in accordance with claim **28**, wherein said compound is radiolabeled.

30. Use of a compound of claim 1 in the manufacture of a medicament for the treatment of a disease or disorder selected from the group consisting of cancer, inflammation and neural or progenitor/stem cell disorders.