

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

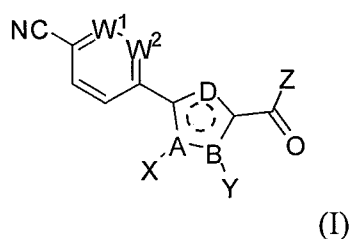
Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or -N(R³)₂.

[0005] One embodiment provides a pharmaceutical composition comprising a compound of Formula (I), or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable excipient.

[0006] One embodiment provides a method of regulating gene transcription in a cell comprising inhibiting lysine-specific demethylase 1 activity by exposing the lysine-specific demethylase 1 enzyme to a compound of Formula (I).

[0007] One embodiment provides a method of treating cancer in a patient in need thereof, comprising administering to the patient a compound of Formula (I), or a pharmaceutically acceptable salt thereof.

[0007a] One embodiment provides a compound having the structure of Formula (I), or a pharmaceutically acceptable salt thereof,



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

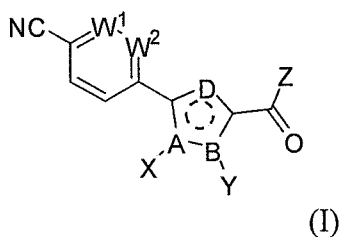
W¹ and W² are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or -N(R³)₂.

[0007b] One embodiment provides a pharmaceutical composition comprising a compound of Formula (I), or a pharmaceutically acceptable salt thereof,



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

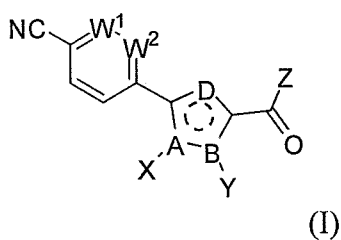
W^1 and W^2 are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or -N(R³)₂, and a pharmaceutically acceptable excipient.

[0007c] One embodiment provides a use of a compound of Formula (I)



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

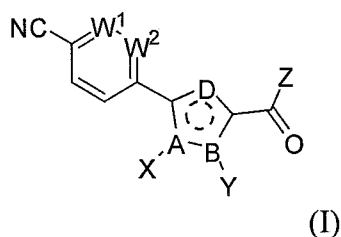
W^1 and W^2 are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclylalkyl, optionally substituted -N(Me)-heterocyclylalkyl, or -N(R³)₂ in the manufacture of a medicament for regulating gene transcription in a cell comprising inhibiting lysine-specific demethylase 1 activity.

[0007d] One embodiment provides a use of a compound of Formula (I), or a pharmaceutically acceptable salt thereof,



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

W¹ and W² are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclylalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclylalkyl, optionally substituted -N(Me)-heterocyclylalkyl, or -N(R³)₂ in the manufacture of a medicament for treating acute myeloid leukemia, breast or prostate cancer in a patient in need thereof.

INCORPORATION BY REFERENCE

[0008] All publications, patents, and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication, patent, or patent application was specifically and individually indicated to be incorporated by reference.

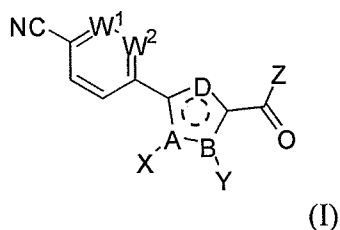
DETAILED DESCRIPTION OF THE INVENTION

[0009] As used herein and in the appended claims, the singular forms "a," "and," and "the" include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to "an agent" includes a plurality of such agents, and reference to "the cell" includes reference to one or more cells (or to a plurality of cells) and equivalents thereof known to those skilled in the art, and so forth. When ranges are used herein for physical properties, such as molecular weight, or chemical properties, such as chemical formulae, all combinations and subcombinations of ranges and specific embodiments therein are intended to be included. The term "about" when referring to a number or a numerical range means that the number or numerical range referred to is an approximation within experimental variability (or within statistical experimental error), and thus the number or numerical range may vary between 1% and 15% of the stated number or numerical range. The term "comprising" (and related terms such as "comprise" or "comprises" or "having" or "including") is not intended to exclude that in other certain embodiments, for example, an embodiment of any composition of matter,

CLAIMS

We Claim:

1. A compound having the structure of Formula (I), or a pharmaceutically acceptable salt thereof,



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

W^1 and W^2 are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

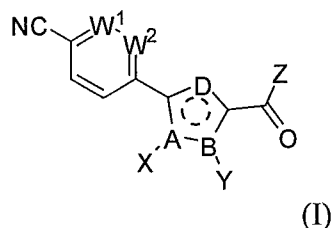
Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or -N(R³)₂.

2. The compound or pharmaceutically acceptable salt of claim 1, wherein W^2 is C-H.
3. The compound or pharmaceutically acceptable salt of claim 1 or 2, wherein W^1 is C-F.
4. The compound or pharmaceutically acceptable salt of claim 1 or 2, wherein W^1 is C-H.
5. The compound or pharmaceutically acceptable salt of claim 1 or 2, wherein W^1 is N.
6. The compound or pharmaceutically acceptable salt of any one of claims 1-5, wherein X is optionally substituted aryl.
7. The compound or pharmaceutically acceptable salt of claim 6, wherein the optionally substituted aryl is an optionally substituted phenyl.
8. The compound or pharmaceutically acceptable salt of any one of claims 1-5, wherein X is optionally substituted heteroaryl.

9. The compound or pharmaceutically acceptable salt of claim 8, wherein the optionally substituted heteroaryl is chosen from an optionally substituted pyridinyl, optionally substituted pyrimidinyl, optionally substituted pyrazinyl, optionally substituted pyrazolyl, optionally substituted indazolyl, optionally substituted azaindazolyl, optionally substituted isoindazolyl, optionally substituted indolyl, or optionally substituted azaindolyl.
10. The compound or pharmaceutically acceptable salt of any one of claims 1-9, wherein Z is an optionally substituted *N*-heterocyclyl and the optionally substituted *N*-heterocyclyl is a 4-, 5-, 6-, or 7-membered *N*-heterocyclyl.
11. The compound or pharmaceutically acceptable salt of claim 10, wherein the optionally substituted *N*-heterocyclyl is a 6-membered *N*-heterocyclyl.
12. The compound or pharmaceutically acceptable salt of claim 11, wherein the optionally substituted *N*-heterocyclyl is an optionally substituted piperidine.
13. The compound or pharmaceutically acceptable salt of claim 12, wherein the optionally substituted piperidine is an optionally substituted 3-aminopiperidine.
14. The compound or pharmaceutically acceptable salt of claim 10, wherein the optionally substituted *N*-heterocyclyl is a 5-membered *N*-heterocyclyl.
15. The compound or pharmaceutically acceptable salt of claim 14, wherein the optionally substituted *N*-heterocyclyl is an optionally substituted pyrrolidine.
16. The compound or pharmaceutically acceptable salt of claim 15, wherein the optionally substituted pyrrolidine is an optionally substituted 3-aminopyrrolidine.
17. The compound or pharmaceutically acceptable salt of any one of claims 1-16, wherein Y is hydrogen.
18. The compound or pharmaceutically acceptable salt of any one of claims 1-16, wherein Y is halogen.
19. The compound or pharmaceutically acceptable salt of any one of claims 1-16, wherein Y is optionally substituted alkyl.
20. The compound or pharmaceutically acceptable salt of any one of claims 1-16, wherein Y is optionally substituted cycloalkyl.
21. The compound or pharmaceutically acceptable salt of any one of claims 1-16, wherein Y is optionally substituted cycloalkylalkyl.

22. The compound or pharmaceutically acceptable salt of claim 19, wherein the optionally substituted alkyl is an optionally substituted C₁-C₃ alkyl.
23. The compound or pharmaceutically acceptable salt of claim 19, wherein the optionally substituted alkyl is an optionally substituted C₁ alkyl.
24. The compound or pharmaceutically acceptable salt of claim 19, wherein the optionally substituted alkyl is a methyl group.
25. The compound or pharmaceutically acceptable salt of any one of claims 1-24, wherein A is N; B is C; and D is N.
26. The compound or pharmaceutically acceptable salt of any one of claims 1-24, wherein A is C; B is N; and D is CH.
27. The compound or pharmaceutically acceptable salt of claim 26, wherein R³ is hydrogen.
28. The compound or pharmaceutically acceptable salt of claim 26, wherein R³ is optionally substituted alkyl.
29. A pharmaceutical composition comprising a compound of Formula (I), or a pharmaceutically acceptable salt thereof,



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

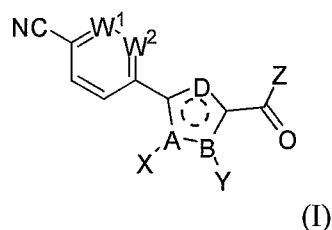
W¹ and W² are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or -N(R³)₂, and a pharmaceutically acceptable excipient.

30. Use of a compound of Formula (I)



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

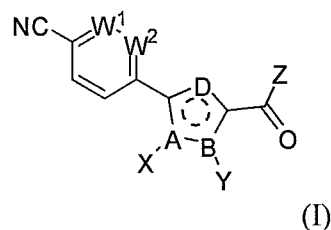
W¹ and W² are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or -N(R³)₂ in the manufacture of a medicament for regulating gene transcription in a cell comprising inhibiting lysine-specific demethylase 1 activity .

31. Use of a compound of Formula (I), or a pharmaceutically acceptable salt thereof,



wherein,

A is C; B is N; and D is CH; or A is N; B is C; and D is N;

W¹ and W² are independently chosen from N, C-H, or C-F;

X is chosen from optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, optionally substituted alkyl, optionally substituted heterocyclyl, optionally substituted cycloalkylalkyl, optionally substituted heterocyclalkyl, optionally substituted aralkyl, or optionally substituted heteroarylalkyl;

Y is chosen from hydrogen, halogen, optionally substituted alkyl, optionally substituted cycloalkyl, or optionally substituted cycloalkylalkyl; and

Z is chosen from an optionally substituted *N*-heterocyclyl, optionally substituted -N(H)-heterocyclalkyl, optionally substituted -N(Me)-heterocyclalkyl, or $-N(R^3)_2$ in the manufacture of a medicament for treating acute myeloid leukemia, breast or prostate cancer in a patient in need thereof.