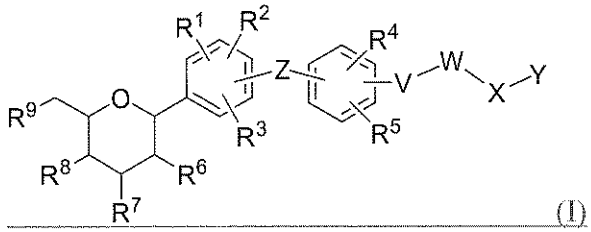
using the compounds, independently or in combination with other therapeutic agents, for treating diseases and conditions which are affected by SGLT inhibition.

[0006a] In one aspect, there is provided a compound of Formula I:



(I)

wherein

V is a member selected from the group consisting of oxygen; sulfur; SO; SO_2; and a single bond;

W is a member selected from the group consisting of C_1-C_6 alkylene, C_2-C_6 alkenylene, C_2-C_6 alkynylene, C_3-C_{10} cycloalkylene, C_5-C_{10} cycloalkenylene and (C_3-C_{10} cycloalkylene)(C_1-C_6 alkylene) wherein the C_3-C_{10} cycloalkylene portion bonds to V and the C_1-C_6 alkylene portion bonds to X, and

wherein alkylene, alkenylene, alkynylene, cycloalkylene and cycloalkenylene groups or portions are optionally partly or completely fluorinated and are optionally mono- or disubstituted by substituents independently selected from the group consisting of chlorine, hydroxy, C_1-C_3 alkyl, C_1-C_3 alkoxy, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyloxy, C_5-C_{10} cycloalkenyl and C_5-C_{10} cycloalkenyloxy, and in cycloalkylene and cycloalkenylene groups or portions one or two methylene groups are optionally replaced independently of one another by O, S, CO, SO, SO_2 or NR^b, and one or two methyne groups are optionally replaced by N;

X is a member selected from the group consisting of oxygen; sulfur; SO; and SO_2;

Y is a member selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_1-C_6 haloalkyl, C_1-C_6 hydroxyalkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, (C_3-C_{10} cycloalkyl)C_1-C_4 alkyl, (C_5-C_{10} cycloalkenyl)C_1-C_3 alkyl, (C_3-C_{10} cycloalkyl)C_2-C_4 alkenyl, C_3-C_6 cycloalkylidenmethyl, (C_5-C_{10} cycloalkenyl)C_2-C_4 alkenyl, (C_1-C_4 alkyloxy)C_1-C_3 alkyl, (C_2-C_4 alkenyloxy)C_1-C_3 alkyl, (C_3-C_{10} cycloalkyloxy)C_1-C_3 alkyl, (C_5-C_{10} cycloalkenyloxy)C_1-C_3 alkyl, (amino)C_1-C_3 alkyl, (C_1-C_4 alkylamino)C_1-C_3 alkyl, di-(C_1-C_3 alkylamino)C_1-C_3 alkyl, (C_1-C_6 alkyl)carbonyl(C_1-C_3)alkyl, (C_2-C_6 alkenyl)carbonyl(C_1-C_3)alkyl, (C_2-C_6 alkynyl)carbonyl(C_1-C_3)alkyl, (arylcarbonyl)C_1-C_3 alkyl, (heteroarylcarbonyl)C_1-C_3 alkyl, (C_1-C_6 alkylsulfonyl)C_1-C_3 alkyl, (C_2-C_6 alkenylsulfonyl)C_1-C_3 alkyl, (C_2-C_6

alkynylsulfonyl)C_1-C_3 alkyl, (arylsulfonyl)C_1-C_3 alkyl, (heteroarylsulfonyl)C_1-C_3 alkyl, (C_1-C_6 alkyl)aminocarbonyl(C_1-C_3)alkyl, (C_2-C_6 alkenyl)aminocarbonyl(C_1-C_3)alkyl, (C_2- C_6 alkynyl)aminocarbonyl(C_1-C_3)alkyl, (arylaminocarbonyl)C_1-C_3 alkyl, (heteroarylaminocarbonyl)C_1-C_3 alkyl, (C_1-C_6 alkyl)carbonyl, (C_2-C_6 alkenyl)carbonyl, (C_2-C_6 alkynyl)carbonyl, arylcarbonyl, heteroarylcarbonyl, (C_1-C_6 alkyl)sulfonyl, (C_2-C_6 alkenyl)sulfonyl, (C_2-C_6 alkynyl)sulfonyl, arylsulfonyl and heteroarylsulfonyl;

wherein alkyl, alkenyl, alkynyl, cycloalkyl and cycloalkenyl groups or portions are optionally partly or completely fluorinated and are optionally mono- or disubstituted by substituents independently selected from the group consisting of chlorine, hydroxy, C_1-C_3 alkyl, C_1-C_3 alkoxy, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyloxy, C_5-C_{10} cycloalkenyl, C_5-C_{10} cycloalkenyloxy, and NR^bR^c, and in cycloalkyl and cycloalkenyl groups or portions one or two methylene groups are optionally replaced independently of one another by O, S, CO, SO, SO_2 or NR^b, and one or two methyne groups are optionally replaced by N, wherein the heterocycle formed by said optional replacement is other than heteroaryl, and wherein

when V is a member selected from the group consisting of oxygen, sulfur and a single bond and W is C_1-C_6 alkylene, then Y is other than hydrogen or C_1-C_6 alkyl; and

when V is oxygen, W is C_3-C_{10} cycloalkylene and X is oxygen, then Y is other than hydrogen, C_1-C_6 alkyl or trifluoromethyl; and

when V is a single bond and W is a member selected from the group consisting of C_2-C_6 alkenylene, C_2-C_6 alkynylene, C_3-C_{10} cycloalkylene and C_5-C_{10} cycloalkenylene, then Y is other than hydrogen, C_1-C_6 alkyl or (C_3-C_{10} cycloalkyl)C_1-C_4 alkyl; and

when V is a member selected from the group consisting of oxygen, sulfur, SO and SO_2, W is a member selected from the group consisting of C_2-C_6 alkenylene and C_2-C_6 alkynylene, and Y is a member selected from the group consisting of C_3-C_{10} cycloalkyl and C_5-C_{10} cycloalkenyl, then X can also represent a single bond;

or optionally, X is NR^a and Y is a member selected from the group consisting of C_1-C_6 alkylsulfonyl, C_2-C_6 alkenylsulfonyl, C_2-C_6 alkynylsulfonyl, arylsulfonyl, heteroarylsulfonyl, C_1-C_6 alkylsulfinyl, arylsulfinyl, heteroarylsulfinyl, (C_1-C_6 alkyl)carbonyl, (C_2-C_6 alkenyl)carbonyl, (C_2-C_6 alkynyl)carbonyl, arylcarbonyl, heteroarylcarbonyl, (C_1-C_6 alkyl)aminocarbonyl, (C_2-C_6 alkenyl)aminocarbonyl, (C_2-C_6 alkynyl)aminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, (C_1-C_6 alkylsulfonyl)C_1-C_3 alkyl, (C_2-C_6 alkenylsulfonyl)C_1-C_3 alkyl, (C_2-C_6 alkynylsulfonyl)C_1-

C_3 alkyl, (arylsulfonyl)C_1-C_3 alkyl, (heteroarylsulfonyl)C_1-C_3 alkyl, (C_1-C_6 alkylsulfinyl)C_1-C_3 alkyl, (arylsulfinyl)C_1-C_3 alkyl, (heteroarylsulfinyl)C_1-C_3 alkyl, (C_1-C_6 alkyl)aminocarbonyl(C_1-C_3)alkyl, (C_2-C_6 alkenyl)aminocarbonyl(C_1-C_3)alkyl, (C_2-C_6 alkynyl)aminocarbonyl(C_1-C_3)alkyl, (arylaminocarbonyl)C_1-C_3 alkyl and (heteroarylaminocarbonyl)C_1-C_3 alkyl;

wherein alkyl, alkenyl and alkynyl portions are optionally partly or completely fluorinated, and

when R^a is a member selected from the group consisting of H and (C_1-C_4 alkyl)carbonyl, then Y is other than (C_1-C_6 alkyl)carbonyl or arylcarbonyl;

Z is a member selected from the group consisting of oxygen; sulfur; SO; SO_2; 1,1-cyclopropylene; carbonyl; and methylene optionally substituted with one to two substituents independently selected from halo, hydroxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_6 cycloalkyl and C_3-C_6 cycloalkyloxy;

R^1, R^2 and R^3 are each members independently selected from the group consisting of hydrogen, halo, hydroxy, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, C_5-C_{10} cycloalkenyl, C_1-C_6 alkyloxy, C_3-C_{10} cycloalkyloxy, cyano and nitro, wherein alkyl and cycloalkyl groups or portions are optionally mono- or polysubstituted by fluorine, or

when R^1 and R^2 are bound to two adjacent C atoms, R^1 and R^2 are optionally joined together to form a C_3-C_5 alkylene, C_3-C_5 alkenylene or butadienylene bridge, which is optionally partly or completely fluorinated and is optionally mono- or disubstituted by identical or different substituents selected from chlorine, hydroxy, C_1-C_3 alkoxy and C_1-C_3 alkyl, and wherein one or two methylene groups are optionally replaced independently of one another by O, S, CO, SO, SO_2 or NR^b, and wherein one or two methyne groups are optionally replaced by N;

R^4 and R^5 are each members independently selected from the group consisting of hydrogen, halo, cyano, nitro, hydroxy, C_1-C_6 alkyl, C_3-C_{10} cycloalkyl, C_1-C_3 alkyloxy and C_3-C_{10} cycloalkyloxy, wherein alkyl and cycloalkyl groups or portions are optionally mono- or polysubstituted by fluorine, or

when R^4 and R^5 are bound to two adjacent C atoms, R^4 and R^5 are optionally joined together to form a C_3-C_5 alkylene, C_3-C_5 alkenylene or butadienylene bridge, which is optionally partly or completely fluorinated and is optionally mono- or disubstituted by identical or different substituents selected from chlorine, hydroxy, C_1-C_3 alkoxy and C_1-C_3 alkyl, and

wherein one or two methylene groups are optionally replaced independently of one another by O, S, CO, SO, SO_2 or NR^b, and wherein one or two methyne groups are optionally replaced by N;

R^6, R^7, R^8 and R^9 are each members independently selected from the group consisting of hydroxy, (C_1-C_{18} alkyl)carbonyloxy, (C_1-C_{18} alkyl)oxycarbonyloxy, arylcarbonyloxy, aryl-(C_1-C_3 alkyl)carbonyloxy, (C_3-C_{10} cycloalkyl)carbonyloxy, hydrogen, halo, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, (C_3-C_{10})cycloalkyl-(C_1-C_3)alkyl, (C_5-C_7)cycloalkenyl-(C_1-C_3)alkyl, aryl-(C_1-C_3)alkyl, heteroaryl-(C_1-C_3)alkyl, C_1-C_6 alkyloxy, C_2-C_6 alkenyloxy, C_2-C_6 alkynyloxy, C_3-C_7 cycloalkyloxy, C_5-C_7 cycloalkenyloxy, aryloxy, heteroaryloxy, (C_3-C_7)cycloalkyl-(C_1-C_3)alkyloxy, (C_5-C_7)cycloalkenyl-(C_1-C_3)alkyloxy, aryl-(C_1-C_3)alkyloxy, heteroaryl-(C_1-C_3)alkyloxy, aminocarbonyl, hydroxycarbonyl, (C_1-C_4 alkyl)aminocarbonyl, di-(C_1-C_3 alkyl)aminocarbonyl, (C_1-C_4 alkyloxy)carbonyl, aminocarbonyl-(C_1-C_3)alkyl, (C_1-C_4 alkyl)aminocarbonyl-(C_1-C_3)alkyl, di-(C_1-C_3 alkyl)aminocarbonyl-(C_1-C_3)alkyl, hydroxycarbonyl-(C_1-C_3)alkyl, (C_1-C_4 alkyloxy)carbonyl-(C_1-C_3)alkyl, (C_3-C_7)cycloalkyloxy-(C_1-C_3)alkyl, (C_5-C_7)cycloalkenyloxy-(C_1-C_3)alkyl, aryloxy-(C_1-C_3)alkyl, heteroaryloxy-(C_1-C_3)alkyl, C_1-C_4 alkylsulfonyloxy, arylsulfonyloxy, aryl-(C_1-C_3)alkyl-sulfonyloxy, trimethylsilyloxy, *t*-butyldimethylsilyloxy, and cyano;

wherein alkyl, alkenyl, alkynyl, cycloalkyl and cycloalkenyl groups or portions are optionally partly or completely fluorinated and are optionally mono- or disubstituted by substituents independently selected from chlorine, hydroxy, C_1-C_3 alkoxy and C_1-C_3 alkyl, and in cycloalkyl and cycloalkenyl groups or portions one or two methylene groups are optionally replaced independently of one another by NR^b, O, S, CO, SO or SO_2;

when Y is hydrogen or C_1-C_6 alkyl, then both R^8 and R^9 are hydroxy;

each R^a is a member independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl and (C_1-C_4 alkyl)carbonyl, wherein alkyl and cycloalkyl groups or portions are optionally partly or completely fluorinated;

each R^b is a member independently selected from the group consisting of H, C_1-C_4 alkyl and (C_1-C_4 alkyl)carbonyl, wherein alkyl groups or portions are optionally partly or completely fluorinated;

each R^c is a member independently selected from the group consisting of H, C_1-C_4 alkyl, C_3-C_6 cycloalkyl, CHR^dR^e, SO_2R^d, $C(O)OR^d$ and $C(O)NR^dR^e$, wherein alkyl and cycloalkyl groups are optionally partly or completely fluorinated; and

R^d and R^e each independently represent H or C_1-C_6 alkyl, wherein alkyl groups are optionally partly or completely fluorinated;

and pharmaceutically acceptable salts thereof.

[0006b] In one aspect, there is provided a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound as described herein.

[0006c] In one aspect, there is a provided use of a therapeutically effective amount of a compound as described herein in the manufacture of a medicament for treating diabetes.

[0006d] In one aspect, there is provided a prodrug ester of a compound as described herein.

[0006e] In one aspect, there is provided use of a therapeutically effective amount of a compound as described herein in the manufacture of a medicament for treating a disease or condition mediated by SGLT.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. **1** is the general synthesis method of Scheme I for the preparation of compounds of the invention.

[0008] FIG. **2** is the general synthesis method of Scheme II for the preparation of compounds of the invention.

[0009] FIG. **3** is the general synthesis method of Scheme III for the preparation of compounds of the invention.

[0010] FIG. **4** is the outline for the preparation of intermediate **D**.

[0011] FIG. **5** is the outline for the synthesis of compounds **E** and **F** of the invention.

[0012] FIG. **6** is the outline for the synthesis of compound **G** of the invention.

[0013] FIG. **7** is the outline for the synthesis of compounds **K** and **L** of the invention.

[0014] FIG. **8** is the outline for the synthesis of compounds **M** and **N** of the invention.

[0015] FIG. **9** is the outline for the synthesis of compounds **P** and **Q** of the invention.

[0016] FIG. **10** is the outline for the synthesis of compounds **R** and **S** of the invention.

[0017] FIG. **11** is the outline for the synthesis of compound **T** of the invention.

[0018] FIG. **12** is the outline for the synthesis of compound **V** of the invention.

[0019] FIG. **13** is the outline for the synthesis of compound **W** of the invention.

[0020] FIG. **14** is the outline for the synthesis of compounds **X** and **Y** of the invention.

[0021] FIG. **15** is the outline for the synthesis of compounds **Z** and **AA** of the invention.

[0022] FIG. **16** is the outline for the synthesis of compound **AD** of the invention.

[0023] FIG. **17** is the outline for the synthesis of compound **AF** of the invention.

[0024] FIG. **18** is the outline for the synthesis of compound **AS** of the invention.

[0025] FIG. **19** is the outline for the synthesis of compounds **AV** and **AW** of the invention.

(2S,3R,4R,5S,6R)-2-(4-chloro-3-(4-(cyclopropoxymethyl)benzyl)phenyl)-6-(hydroxymethyl)tetrahydro-2H-pyran-3,4,5-triol;
(2S,3R,4R,5S,6R)-2-(4-chloro-3-(4-(2-cyclopropoxypropoxy)benzyl)phenyl)-6-(hydroxymethyl)tetrahydro-2H-pyran-3,4,5-triol; and
(2S,3R,4R,5S,6R)-2-(4-chloro-3-(4-(3-cyclopropoxypropyl)benzyl)phenyl)-6-(hydroxymethyl)tetrahydro-2H-pyran-3,4,5-triol.

23. A prodrug ester of a compound of any of claims **1** to **22**.

24. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound of any of claims **1** to **22**.

25. ~~A method of treating a disease or condition mediated by SGLT, said method comprising administering to a subject in need thereof~~ Use of a therapeutically effective amount of a compound of any of claims **1** to **22** in the manufacture of a medicament for treating a disease or condition mediated by SGLT.

26. ~~A method of treating diabetes, said method comprising administering to a subject in need thereof~~ Use of a therapeutically effective amount of a compound of claim **1** in the manufacture of a medicament for treating diabetes.

27. A ~~method~~ use in accordance with claim **26**, wherein said diabetes is type 1 diabetes.

28. A ~~method~~ use in accordance with claim **26**, wherein said diabetes is type 2 diabetes.

29. A ~~method~~ use in accordance with claim **26**, wherein said ~~compound~~ medicament is to be admininistered in combination with a second therapeutic agent.

30. A ~~method~~ use in accordance with claim **29**, wherein said second therapeutic agent is selected from antidiabetic agents, lipid-lowering/lipid-modulating agents, agents for treating diabetic complications, anti-obesity agents, antihypertensive agents, antihyperuricemic agents, and agents for treating chronic heart failure, atherosclerosis or related disorders.