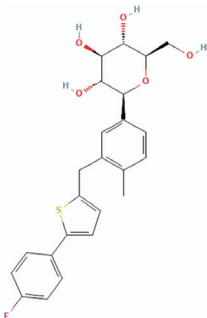
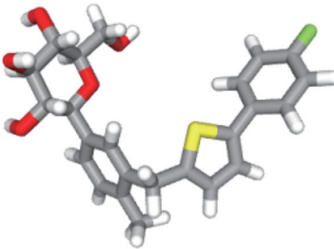
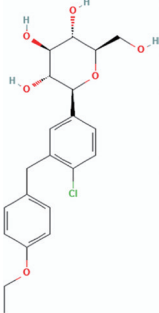
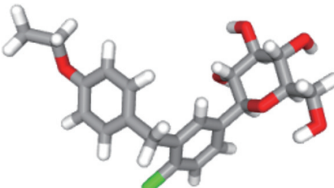
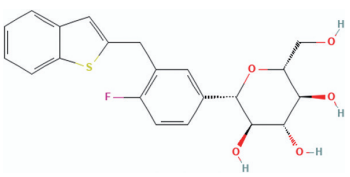
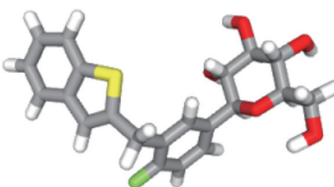
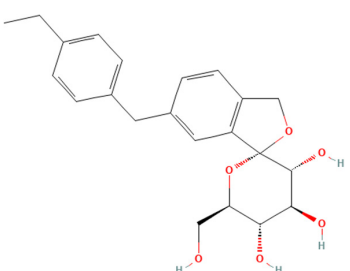
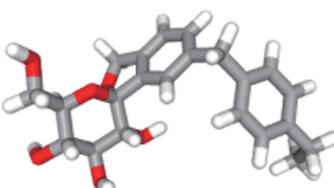


Supplementary

Table S1 Detailed information and structural formulas for the four SGLT2i

Drug	PubChem CID	Molecular Formula	2D image	3D image
Canagliflozin	24812758	$C_{24}H_{25}FO_5S$		
Dapagliflozin	9887712	$C_{21}H_{25}ClO_6$		
Ipragliflozin	10453870	$C_{21}H_{21}FO_5S$		
Tofogliflozin	46908929	$C_{22}H_{26}O_6$		

CID, compound identity document; D, dimension.

Table S2 The top 10 items in the Gene Ontology (GO) enrichment analysis

GO items	ID	Description	P value	P adjust	Gene number
BP	GO:0030574	Collagen catabolic process	1.51385E-15	4.15099E-12	10
BP	GO:0032963	Collagen metabolic process	1.56498E-14	2.14558E-11	12
BP	GO:0022617	Extracellular matrix disassembly	4.36282E-13	3.98761E-10	10
BP	GO:0048608	Reproductive structure development	4.94318E-12	3.00938E-09	16
BP	GO:0061458	Reproductive system development	5.48757E-12	3.00938E-09	16
BP	GO:0071496	Cellular response to external stimulus	3.06721E-11	1.40172E-08	14
BP	GO:0048511	Rhythmic process	7.52609E-11	2.94808E-08	13
BP	GO:0030198	Extracellular matrix organization	9.09553E-11	3.11749E-08	14
BP	GO:0043062	Extracellular structure organization	5.46368E-10	1.6646E-07	14
BP	GO:0009410	Response to xenobiotic stimulus	9.6201E-10	2.63783E-07	12
CC	GO:0045121	Membrane raft	1.23713E-09	9.33414E-08	12
CC	GO:0098857	Membrane microdomain	1.28238E-09	9.33414E-08	12
CC	GO:0062023	Collagen-containing extracellular matrix	1.94704E-09	9.33414E-08	13
CC	GO:0098589	Membrane region	1.95479E-09	9.33414E-08	12
CC	GO:0005925	Focal adhesion	2.05839E-08	6.78397E-07	12
CC	GO:0005924	Cell-substrate adherens junction	2.23292E-08	6.78397E-07	12
CC	GO:0030055	Cell-substrate junction	2.48627E-08	6.78397E-07	12
CC	GO:0045177	Apical part of cell	1.12054E-06	2.51856E-05	10
CC	GO:0043202	Lysosomal lumen	1.18676E-06	2.51856E-05	6
CC	GO:0005775	Vacuolar lumen	2.82833E-06	5.40211E-05	7
MF	GO:0004175	Endopeptidase activity	1.19657E-17	3.81706E-15	21
MF	GO:0017171	Serine hydrolase activity	4.27422E-13	6.81739E-11	13
MF	GO:0008236	Serine-type peptidase activity	7.34013E-12	7.80501E-10	12
MF	GO:0004252	Serine-type endopeptidase activity	3.74495E-11	2.9866E-09	11
MF	GO:0004222	Metalloendopeptidase activity	2.96534E-10	1.89189E-08	9
MF	GO:0008237	Metallopeptidase activity	2.6283E-09	1.39738E-07	10
MF	GO:0019902	Phosphatase binding	5.2312E-08	2.38393E-06	9
MF	GO:0019903	Protein phosphatase binding	8.77151E-08	3.49764E-06	8
MF	GO:0016712	Oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, reduced flavin or flavoprotein as one donor, and incorporation of one atom of oxygen	1.66745E-07	5.9102E-06	5
MF	GO:0004707	MAP kinase activity	2.30954E-07	7.36743E-06	4

GO, Gene Ontology; ID, identity document; BP, biological process; CC, cell component; MF, molecular function.

Table S3 The top 20 enriched related pathways for canagliflozin and ipragliflozin in the treatment of obesity-related atrial fibrillation

ID	Description	P value	P adjust	Gene number
hsa01522	Endocrine resistance	5.34677E-13	1.06935E-10	13
hsa04933	AGE-RAGE signaling pathway in diabetic complications	1.55097E-11	1.55097E-09	12
hsa04668	TNF signaling pathway	6.05918E-11	4.03946E-09	12
hsa04657	IL-17 signaling pathway	1.56086E-10	7.80432E-09	11
hsa05418	Fluid shear stress and atherosclerosis	7.74479E-10	3.09792E-08	12
hsa05215	Prostate cancer	4.04681E-09	1.29533E-07	10
hsa05161	Hepatitis B	4.53366E-09	1.29533E-07	12
hsa04210	Apoptosis	8.48362E-09	2.1209E-07	11
hsa05219	Bladder cancer	2.84821E-08	6.32935E-07	7
hsa04926	Relaxin signaling pathway	6.47724E-08	1.29545E-06	10
hsa01521	EGFR tyrosine kinase inhibitor resistance	1.88156E-07	3.42102E-06	8
hsa05210	Colorectal cancer	3.66136E-07	6.10227E-06	8
hsa04510	Focal adhesion	4.77012E-07	7.33865E-06	11
hsa05205	Proteoglycans in cancer	5.81077E-07	8.3011E-06	11
hsa04024	cAMP signaling pathway	9.77837E-07	1.30378E-05	11
hsa04914	Progesterone-mediated oocyte maturation	1.17543E-06	1.40523E-05	8
hsa04917	Prolactin signaling pathway	1.2647E-06	1.40523E-05	7
hsa05120	Epithelial cell signaling in Helicobacter pylori infection	1.2647E-06	1.40523E-05	7
hsa04915	Estrogen signaling pathway	1.35811E-06	1.42959E-05	9
hsa05167	Kaposi sarcoma-associated herpesvirus infection	2.74876E-06	2.65163E-05	10

ID, identity document; AGE, advanced glycation end products; RAGE, receptor for advanced glycation end products; TNF, tumor necrosis factor; IL-17, interleukin-17; EGFR, epidermal growth factor receptor; cAMP, cyclic adenosine monophosphate.