Supplementary Materials

Table 1. Search terms (Date: Nov. 15, 2023).

Database	Search terms	Outcome
PubMed	((("dulaglutide" [Supplementary Concept] OR "Exenatide"[Mesh] OR "semaglutide" [Supplementary Concept] OR "Liraglutide"[Mesh] OR "lixisenatide" [Supplementary Concept] OR "Glucagon-Like Peptides"[Mesh] OR "empagliflozin" [Supplementary Concept] OR "Canagliflozin"[Mesh] OR "dapagliflozin" [Supplementary Concept] OR "ertugliflozin" [Supplementary Concept] OR "bexagliflozin" [Supplementary Concept] OR "Sodium-Glucose Transporter 2 Inhibitors"[Mesh] OR "Sodium-Glucose Transporter 2 Inhibitors" [Pharmacological Action] OR "Sitagliptin Phosphate"[Mesh] OR "saxagliptin" [Supplementary Concept] OR "Linagliptin"[Mesh] OR "alogliptin" [Supplementary Concept] OR "Vildagliptin"[Mesh] OR "Dipeptidyl-Peptidase IV Inhibitors"[Mesh] OR "Dipeptidyl-Peptidase IV Inhibitors" [Pharmacological Action] OR dulaglutide[Title/Abstract] OR exenatide[Title/Abstract] OR semaglutide[Title/Abstract] OR liraglutide[Title/Abstract] OR lixisenatide[Title/Abstract] OR "glucagon-like peptide*"[Title/Abstract] OR "GLP 1 agonist*"[Title/Abstract] OR GLP-1[Title/Abstract] OR "GLP 1"[Title/Abstract] OR empagliflozin[Title/Abstract] OR canagliflozin[Title/Abstract] OR dapagliflozin[Title/Abstract] OR ertugliflozin[Title/Abstract] OR bexagliflozin[Title/Abstract] OR "sodium-glucose transporter 2 inhibitor*"[Title/Abstract] OR SGLT-2[Title/Abstract] OR "SGLT 2"[Title/Abstract] OR sitagliptin[Title/Abstract] OR saxagliptin[Title/Abstract] OR linagliptin[Title/Abstract] OR alogliptin[Title/Abstract] OR vildagliptin[Title/Abstract] OR "dipeptidyl-peptidase IV inhibitor*"[Title/Abstract] OR "DPP-4 inhibitor*"[Title/Abstract])) AND (("Neoplasms"[Mesh] OR "Carcinoma"[Mesh] OR cancer*[Title/Abstract] OR tumor*[Title/Abstract] OR tumour*[Title/Abstract] OR carcinoma*[Title/Abstract] OR neoplasm*[Title/Abstract])))	1318
CINAHL	((((MW dulaglutide) OR (MH Exenatide+) OR (MW semaglutide) OR (MH Liraglutide+) OR (MW lixisenatide) OR (MH "Glucagon-Like Peptides+") OR (MW empagliflozin) OR (MH Canagliflozin+) OR (MW dapagliflozin) OR (MW ertugliflozin) OR (MW bexagliflozin) OR (MH "Sodium-Glucose Transporter 2 Inhibitors+") OR "Sodium-Glucose Transporter 2 Inhibitors" OR (MH "Sitagliptin Phosphate+") OR (MW saxagliptin) OR (MH Linagliptin+) OR (MW alogliptin) OR (MH Vildagliptin+) OR (MH "Dipeptidyl-Peptidase IV Inhibitors+") OR "Dipeptidyl-Peptidase IV Inhibitors" OR (TI dulaglutide OR AB dulaglutide) OR (TI exenatide OR AB exenatide) OR (TI semaglutide OR AB semaglutide) OR (TI liraglutide OR AB liraglutide) OR (TI lixisenatide OR AB lixisenatide) OR (TI "glucagon-like peptide*" OR AB "glucagon-like peptide*") OR (TI "GLP 1 agonist*" OR AB "GLP 1 agonist*") OR (TI GLP-1 OR AB GLP-1) OR (TI "GLP 1" OR AB "GLP 1") OR (TI empagliflozin OR AB empagliflozin) OR (TI canagliflozin OR AB canagliflozin) OR (TI dapagliflozin OR AB dapagliflozin) OR (TI ertugliflozin OR AB ertugliflozin) OR (TI bexagliflozin OR AB bexagliflozin) OR (TI "sodium-glucose transporter 2 inhibitor*" OR AB "sodium-glucose transporter 2 inhibitor*") OR (TI SGLT-2 OR AB SGLT-2) OR (TI "SGLT 2" OR AB "SGLT 2") OR (TI sitagliptin OR AB sitagliptin) OR (TI saxagliptin OR AB saxagliptin) OR (TI linagliptin OR AB linagliptin) OR (TI alogliptin OR AB alogliptin) OR (TI vildagliptin OR AB vildagliptin) OR (TI "dipeptidyl-peptidase IV inhibitor*" OR AB "dipeptidyl-peptidase IV inhibitor*") OR (TI "DPP-4 inhibitor*" OR AB "DPP-4 inhibitor*"))) AND (((MH Neoplasms+) OR (MH Carcinoma+) OR (TI cancer* OR AB cancer*) OR (TI tumor* OR AB tumor*) OR (TI tumour* OR AB tumour*) OR (TI carcinoma* OR AB carcinoma*) OR (TI neoplasm* OR AB neoplasm*))))	419
Web of Science	(((ALL=dulaglutide OR ALL=Exenatide OR ALL=semaglutide OR ALL=Liraglutide OR ALL=lixisenatide OR ALL="Glucagon-Like Peptides" OR ALL=empagliflozin OR ALL=Canagliflozin OR ALL=dapagliflozin OR ALL=ertugliflozin OR ALL=bexagliflozin OR ALL="Sodium-Glucose Transporter 2 Inhibitors" OR ALL="Sodium-Glucose Transporter 2 Inhibitors" OR ALL="Sitagliptin Phosphate" OR ALL=saxagliptin OR ALL=Linagliptin OR ALL=alogliptin OR ALL=Vildagliptin OR ALL="Dipeptidyl-Peptidase IV Inhibitors" OR ALL="Dipeptidyl-Peptidase IV Inhibitors"))) (((TI=dulaglutide OR AB=dulaglutide) OR (TI=exenatide OR AB=exenatide) OR (TI=semaglutide OR AB=semaglutide) OR (TI=liraglutide OR AB=liraglutide) OR (TI=lixisenatide OR AB=lixisenatide) OR (TI="glucagon-like peptide*" OR AB="glucagon-like peptide*") OR (TI="GLP 1 agonist*" OR AB="GLP 1 agonist*") OR (TI=GLP-1 OR AB=GLP-1) OR (TI="GLP 1" OR AB="GLP 1") OR (TI=empagliflozin OR AB=empagliflozin) OR (TI=canagliflozin OR	1697

	AB=canagliflozin) OR (TI=dapagliflozin OR AB=dapagliflozin) OR (TI=ertugliflozin OR AB=ertugliflozin) OR (TI=bexagliflozin OR AB=bexagliflozin) OR (TI="sodium-glucose transporter 2 inhibitor*" OR AB="sodium-glucose transporter 2 inhibitor*") OR (TI=SGLT-2 OR AB=SGLT-2) OR (TI="SGLT 2" OR AB="SGLT 2") OR (TI=sitagliptin OR AB=sitagliptin) OR (TI=saxagliptin OR AB=saxagliptin) OR (TI=linagliptin OR AB=linagliptin) OR (TI=alogliptin OR AB=alogliptin) OR (TI=vildagliptin OR AB=vildagliptin) OR (TI="dipeptidyl-peptidase IV inhibitor*" OR AB="dipeptidyl-peptidase IV inhibitor*") OR (TI="DPP-4 inhibitor*" OR AB="DPP-4 inhibitor*"))) ((((ALL=Neoplasms OR ALL=Carcinoma OR (TI=cancer* OR AB=cancer*) OR (TI=tumor* OR AB=tumor*) OR (TI=tumour* OR AB=tumour*) OR (TI=carcinoma* OR AB=carcinoma*) OR (TI=neoplasm* OR AB=neoplasm*)))))	

SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists.

Table 2: Types and frequencies of cancer comparisons.

Type of Cancer	Frequency of comparisons
All cancer types	**11**
Breast	**21**
Digestive/Gastrointestinal	**111**
Cholangiocarcinoma	6
Colon	5
Colorectal	11
Digestive organs	2
Esophagus	2
Esophagus, stomach, and small intestine	2
Gallbladder and extrahepatic bile duct	2
Gastrointestinal (GI)	1
Liver	12
Lower GI	1
Other digestive organs	1
Pancreas	59
Rectum	2
Rectum/Anus	2
Stomach	3
Genitourinary	**36**
Bladder	17
Bladder and Kidney	1
Genitourinary	1
Kidney	5
Prostate	7
Urinary tract	3
Urothelial	1
Uterine	1
Gynecologic	**3**
Endometrial	1
Ovary	2
Head and Neck	**24**
Lip, oral cavity, and pharynx	2
Nasopharynx	1
Oral cavity	2
Thyroid	18
Tongue	1
Hematologic/Blood	**9**
Hematologic	2
Leukemia	2
Lymphatic and hematopoietic tissue	2
Lymphoma	2
Multiple myeloma	1
Musculoskeletal	**1**
Bone	1
Neurologic	**1**
Meningioma	1
Respiratory/Thoracic	**19**
Lung	15
Lung and Larynx	1
Respiratory system	2
Thymus	1
Skin	**5**
Melanoma	2
Non-Melanoma	2
Skin	1
Unclassified	**7**
Total comparisons	**248**

Table 3. Certainty of evidence (GRADE: Grading of Recommendations Assessment, Development and Evaluation).

NMA Comparison		Assessment of Direct estimate				Assessment of Indirect estimate		NMA estimates			Assessment of network estimate		
Treatment 1	Treatment 2	Risk of bias	Inconsistency	Indirectness	Publication bias	Intransitivity	Imprecision	Point estimate	lower limit	upper limit	Incoherence	Imprecision	Final rating
DPP-4i	Sulfonylureas	Not serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.76	0.6	0.96	Not Serious	Not Serious	Low
Metformin	DPP-4i	Not serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.96	0.63	1.49	Not Serious	Not Serious	Low
DPP-4i	GLP-1a	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.97	0.75	1.24	Not Serious	Not Serious	Low
SGLT-2i	DPP-4i	Serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.72	0.57	0.92	Not Serious	Not Serious	Very Low
DPP-4i	TZDs	Serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.95	0.68	1.35	Not Serious	Not Serious	Very Low
Metformin	Sulfonylureas	Not serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.73	0.46	1.16	Not Serious	Not Serious	Low
GLP-1a	Sulfonylureas	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.78	0.6	1.03	Not Serious	Not Serious	Low
SGLT-2i	Sulfonylureas	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.54	0.4	0.74	Not Serious	Not Serious	Low
TZDs	Sulfonylureas	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.8	0.54	1.18	Not Serious	Not Serious	Very Low
Metformin	GLP-1a	Not serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.94	0.61	1.42	Not Serious	Not Serious	Low
SGLT-2i	Metformin	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.75	0.47	1.17	Not Serious	Not Serious	Very Low
Metformin	TZDs	Not serious	Not serious	Not serious	Not serious	Not serious	Very serious	0.92	0.55	1.52	Not Serious	Not Serious	Low
SGLT-2i	GLP-1a	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.7	0.53	0.92	Not Serious	Not Serious	Low
GLP-1a	TZDs	Not serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.98	0.68	1.43	Not Serious	Not Serious	Low
SGLT-2i	TZDs	Serious	Not serious	Not serious	Not serious	Not serious	Not Serious	0.68	0.46	1.02	Not Serious	Not Serious	Very Low

SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Table 4. Quality assessment (Newcastle Ottawa Scale)[1,2].

Cohort Studies					
Study	**Selection**	**Comparability**	**Outcome**	**Total Score**	**Assessment**
Abrahami et al. 2018	✷✷✷✷	✷✷	✷✷✷	9	High
Abrahami et al. 2018	✷✷✷✷	✷✷	✷✷✷	9	High
Abrahami et al. 2022	✷✷✷✷	✷✷	✷✷	8	High
Bea et al. 2023	✷✷✷✷	✷	✷✷✷	8	High
Boniol et al. 2018	✷✷✷✷	✷	✷✷	7	High
Chan et al. 2023	✷✷✷✷	✷	✷✷✷	8	High
Chen et al. 2023	✷✷✷✷	-	✷✷✷	7	High
Choi et al, 2019	✷✷✷✷	✷✷	✷✷	8	High
Chou et al, 2023	✷✷✷✷	✷	✷✷	7	High
Chung et al, 2022	✷✷✷✷	✷	✷✷✷	8	High
Dore et al. 2012	✷✷✷✷	✷	✷✷	7	High
Elashoff et al. 2011	✷	-	-	1	Poor
Funch et al. 2014	✷✷✷✷	-	✷✷	6	Medium
Funch et al. 2018	✷✷✷✷	✷✷	✷✷	8	High
Funch et al. 2019	✷✷✷✷	✷✷	✷✷	8	High
Funch et al. 2021	✷✷✷✷	✷✷	✷✷	8	High
Garry et al. 2018	✷✷✷✷	✷	✷✷	7	High
Gokhale et al. 2014	✷✷✷✷	✷	✷✷	7	High
Goossens et al. 2015	✷✷✷✷	✷	✷✷✷	8	High
Hicks et al. 2016	✷✷✷✷	✷✷	✷✷✷	9	High
Hsu et al. 2021	✷✷✷✷	✷	✷✷	7	High
Htoo et al. 2016	✷✷✷✷	✷	✷✷	7	High
Hu et al. 2023	✷✷✷✷	✷	✷✷	7	High
Karp et al. 2019	✷✷✷✷	✷✷	✷✷	8	High
Kim et al. 2023	✷✷✷✷	✷✷	✷✷✷	9	High
Knappen et al. 2016	✷✷✷✷	✷✷	✷✷✷	9	High
Kubota et al. 2022	✷✷✷✷	✷✷	✷✷	8	High
Lee et al. 2018	✷✷✷✷	✷✷	✷✷✷	9	High
Lee et al. 2019	✷✷✷✷	✷✷	✷✷✷	9	High
Li et al, 2021	✷✷✷✷	✷	✷✷✷	8	High
Liang et al. 2019	✷✷✷✷	✷✷	✷✷	8	High
Lu et al .2022	✷✷✷✷	✷✷	✷✷✷	9	High
Montvida et al. 2018	✷✷✷✷	✷	✷✷	7	High
Na et al. 2022	✷✷✷✷	✷✷	✷✷✷	9	High
Pradhan et al. 2023	✷✷✷✷	✷✷	✷✷✷	9	High
Rokszin et al .2021	✷✷✷✷	✷	✷✷	7	High
Romley et al. 2012	✷✷✷✷	✷	✷✷	7	High
Rouette et al. 2020	✷✷✷✷	✷✷	✷✷✷	9	High
Shin et al. 2016	✷✷✷✷	✷	✷✷✷	8	High
Suissa et al. 2021	✷✷✷✷	✷✷	✷✷✷	9	High
Suto et al. 2021	✷✷✷✷	✷	✷✷	7	High
Tseng, 2015	✷✷✷✷	✷	✷✷	7	High
Tseng, 2016 (Breast)	✷✷✷✷	✷	✷✷	7	High
Tseng, 2016 (Thyroid)	✷✷✷✷	✷	✷✷	7	High
Tseng, 2016 (Prostate)	✷✷✷✷	✷	✷✷	7	High
Tseng, 2017	✷✷✷✷	✷✷	✷✷	8	High
Tseng et al, 2017	✷✷✷✷	✷	✷✷	7	High
Ueda et al. 2021	✷✷✷✷	✷✷	✷✷	8	High
Ueda et al. 2022	✷✷✷✷	✷✷	✷✷	8	High
Wang et al. 2022	✷✷✷✷	✷✷	✷✷✷	9	High
Williams et al. 2019	✷✷✷✷	✷✷	✷✷	8	High
Wong et al. 2020	✷✷✷✷	✷	✷✷	7	High
Yang et al. 2023	✷✷✷✷	✷✷	✷✷✷	9	High
Case-Control studies					
	Selection	**Comparability**	**Exposure**	**Total Score**	**Assessment**
Azoulay et al. 2016	✷✷✷	✷✷	✷✷✷	8	High
Chou et al, 2022	✷✷✷	✷	✷✷✷	7	High
Franchi et al. 2017	✷✷✷	✷	✷✷✷	7	High
Garcia et al. 2020	✷✷	-	✷	3	Poor

Giorda et al. 2020	✷✷✷	✷	✷✷✷	7	High
Lai et al. 2018	✷✷✷	✷	✷✷✷	7	High
Shin et al. 2019	✷✷✷	✷✷	✷✷✷	8	High
Simo et al. 2013	✷✷✷	✷✷	✷✷✷	8	High
Yang et al .2022	✷✷	-	✷	3	Poor

[1]For the comparability section, the studies were assigned one point if they controlled for the major cancer risk factors. One extra point was given to studies that controlled for additional factors like duration of diabetes, HbA1c, and other medications. [2]The studies were rated on a scale from 0 to 9, with ratings of 0 to 3 considered as poor quality, 4 to 6 as medium quality, and 7 to 9 as high quality.

Table 5. Risk of bias (ROBINS-I: Risk Of Bias In Non-randomised Studies - of Interventions) [1,2].

Cohort Studies								
Study	**Domain 1**	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**	**Domain 6**	**Domain 7**	**Overall Assessment**
Abrahami et al. 2018 (colorectal)	Low	Medium	Low	Low	Low	Low	Low	Medium
Abrahami et al. 2018 (cholangio)	Low	Medium	Low	Low	Low	Low	Low	Medium
Abrahami et al. 2022	Low	Medium	Low	Low	Low	Low	Low	Medium
Bea et al. 2023	Serious	Low	Low	Low	Low	Low	Low	Serious
Boniol et al. 2018	Serious	Low	Low	Low	Low	Low	Low	Serious
Chan et al. 2023	Serious	Low	Low	Low	Serious	Low	Low	Serious
Chen et al. 2023	Serious	Low	Low	Low	Low	Low	Low	Serious
Choi et al, 2019	Low	Medium	Low	Low	Low	Low	Low	Medium
Chou et al, 2023	Serious	Low	Low	Low	Low	Low	Low	Low
Chung et al, 2022	Serious	Low	Low	Low	Medium	Low	Low	Serious
Dore et al. 2012	Serious	Low	Low	Low	Low	Low	Low	Serious
Elashoff et al. 2011	Critical	Critical	Low	Low	Low	Critical	Low	Critical
Funch et al. 2014	Critical	Medium	Low	Low	Low	Low	Low	Critical
Funch et al. 2018	Low	Low	Low	Low	Low	Low	Low	Low
Funch et al. 2019	Low	Low	Low	Low	Low	Low	Low	Low
Funch et al. 2021	Low	Low	Low	Low	Low	Low	Low	Low
Garry et al. 2018	Serious	Low	Low	Low	Low	Low	Low	Serious
Gokhale et al. 2014	Serious	Medium	Low	Low	Low	Low	Low	Serious
Goossens et al. 2015	Serious	Medium	Low	Low	Low	Low	Low	Serious
Hicks et al. 2016	Low	Medium	Low	Low	Low	Low	Low	Medium
Hsu et al. 2021	Serious	Low	Low	Low	Low	Low	Low	Serious
Htoo et al. 2016	Serious	Medium	Low	Low	Low	Low	Low	Serious
Hu et al. 2023	Serious	Low	Low	Low	Low	Low	Low	Serious
Karp et al. 2019	Low	Medium	Low	Low	Low	Low	Low	Medium
Kim et al. 2023	Low	Low	Low	Low	Low	Low	Low	Low
Knappen et al. 2016	Low	Medium	Low	Low	Low	Low	Low	Medium
Kubota et al. 2022	Low	Low	Low	Low	Low	Low	Low	Low
Lee et al. 2018	Low	Low	Low	Low	Low	Low	Low	Low
Lee et al. 2019	Low	Low	Low	Low	Low	Low	Low	Low
Li et al, 2021	Serious	Low	Low	Low	Low	Low	Low	Serious
Liang et al. 2019	Low	Low	Low	Low	Low	Low	Low	Low
Lu et al .2022	Low	Medium	Low	Low	Low	Low	Low	Medium
Montvida et al. 2018	Serious	Medium	Low	Low	Low	Low	Low	Serious

Na et al. 2022	Low	Low	Low	Low	Low	Low	Low	Low
Pradhan et al. 2023	Low	Low	Low	Low	Low	Low	Low	Low
Rokszin et al .2021	Serious	Low	Low	Low	Low	Low	Low	Serious
Romley et al. 2012	Serious	Low	Low	Low	Low	Low	Low	Serious
Rouette et al. 2020	Low	Medium	Low	Low	Low	Low	Low	Medium
Shin et al. 2016	Serious	Low	Low	Low	Low	Low	Low	Serious
Suissa et al. 2021	Low	Low	Low	Low	Low	Low	Low	Low
Suto et al. 2021	Serious	Low	Low	Low	Low	Low	Low	Serious
Tseng, 2015	Serious	Low	Low	Low	Low	Low	Low	Serious
Tseng, 2016 (Breast)	Serious	Low	Low	Low	Low	Low	Low	Serious
Tseng, 2016 (Thyroid)	Serious	Low	Low	Low	Low	Low	Low	Serious
Tseng, 2016 (Prostate)	Serious	Low	Low	Low	Low	Low	Low	Serious
Tseng, 2017	Low	Low	Low	Low	Low	Low	Low	Low
Tseng et al, 2017	Serious	Low	Low	Low	Low	Low	Low	Serious
Ueda et al. 2021	Low	Medium	Low	Low	Low	Low	Low	Medium
Ueda et al. 2022	Low	Medium	Low	Low	Low	Low	Low	Medium
Wang et al. 2022	Low	Medium	Low	Low	Low	Low	Low	Medium
Williams et al. 2019	Low	Medium	Low	Low	Low	Low	Low	Medium
Wong et al. 2020	Serious	Medium	Low	Low	Low	Low	Low	Serious
Yang et al. 2023	Low	Low	Low	Low	Low	Low	Low	Low
Case-Control studies								
	Domain 1	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**	**Domain 6**	**Domain 7**	**Overall Assessment**
Azoulay et al. 2016	Low	Low	Low	Low	Low	Low	Low	Low
Chou et al, 2022	Serious	Low	Low	Low	Low	Low	Low	Serious
Franchi et al. 2017	Serious	Low	Low	Low	Low	Low	Low	Serious
Garcia et al. 2020	Critical	Critical	Low	Low	Low	Critical	Low	Critical
Giorda et al. 2020	Serious	Low	Low	Low	Low	Low	Low	Serious
Lai et al. 2018	Low	Low	Low	Low	Low	Low	Low	Low
Shin et al. 2019	Low	Low	Low	Low	Low	Low	Low	Low
Simo et al. 2013	Low	Low	Low	Low	Low	Low	Low	Low
Yang et al .2022	Critical	Critical	Low	Low	Low	Critical	Low	Critical

[1]Grades are (Low / Moderate / Serious / Critical). The seven domains of bias are: Domain 1: Confounding, Domain 2: Selection bias, Domain 3: Bias in measurement classification of interventions, Domain 4: Bias due to deviations from intended interventions, Domain 5: Bias due to missing data, Domain 6: Bias in measurement of outcomes, Domain 7: Bias in selection of the reported result. [2]A low risk of confounding was considered if the study controlled for the major cancer risk factors, including age, gender, previous cancers, smoking, alcohol use, BMI (or appropriate proxies), in addition to any additional diabetes related covariates that made the study comparable to a well-performed RCT. A low risk of selection bias was considered if the two groups had relatively equal parameters like follow-up times, male percentage, HbA1c, and duration of diabetes. The study had an overall low risk of bias if it had a low-risk level in all seven domains.

Table 6. The number of cancer events within each comparison (overall risk of cancer).

Num.	Treatment Name	DPP-4i		TZDs		GLP-1a		SGLT-2i		Sulfonylureas		Metformin	
	Study Name	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients
1	Abrahami et al, 2022 (Bladder)					932	375997	1046	453560				
	Abrahami et al, 2022 (Bladder)	3421	853186					743	347059				
2	Abrahami et al, 2018 (colorectal)	117	6002							241	18513		
	Abrahami et al, 2018 (colorectal)					26	1177			302	18513		
3	Bea et al, 2023 (Thyroid)	1386	904300					123	112017				
	Bea et al, 2023 (Thyroid)					23	21722	524	326993				
4	Chan et al, 2023 (colorectal)	106	12659					66	12659				
5	Choi et al, 2019 (All)	20	769									33	769
6	Chou et al, 2023 (Pancreas)	42	6479					10	6479				
7	Chung et al, 2022 (All)	432	18167					242	18167				
8	Funch et al, 2018 (Breast)	62	12173			67	12173						
	Funch et al, 2018 (Breast)					56	11934					52	11934
	Funch et al, 2018 (Breast)					53	12418			54	12418		
	Funch et al, 2018 (Breast)			41	8009	53	8009						
9	Funch et al, 2021 (Thyroid)	16	25579			24	25579						
	Funch et al, 2021 (Thyroid)					23	24747					23	24747
	Funch et al, 2021 (Thyroid)					23	26076			17	26076		
	Funch et al, 2021 (Thyroid)			17	18210	18	18210						
10	Garry et al, 2018 (Bladder)	193	61438	147	29651								
11	Gokhale et al, 2014 (Pancreas)	26	18179							177	63746		
	Gokhale et al, 2014 (Pancreas)	52	29366	54	26332								
12	Hicks et al, 2016 (Breast)	68	2422			31	498						
13	Htoo et al, 2016 (colorectal)	104	39334	63	25786								
	Htoo et al, 2016 (colorectal)	73	27047							266	76012		
14	Kubota et al, 2022 (Pancreas)	142	61430	6	3329			11	9221	13	4774	22	17324
15	Li et al, 2021 (Bladder)			4	10547			1	3359				
16	Lu et al, 2022 (Prostate)					34	5063			2157	112955		
	Lu et al, 2022 (Prostate)	611	53529							2208	114417		

17	Pradhan et al, 2023 (Melanoma)	119	96739							515	209341		
	Pradhan et al, 2023 (non-Melanoma)	1059	96411							3643	208626		
18	Shin et al, 2016 (Pancreas)	2	1620									4	3240
19	Suissa et al, 2021 (Breast)	382	36631					67	9938				
20	Suto et al, 2021 (All)	506	18316					408	18383				
21	Ueda et al, 2022 (Bladder)					70	49398	73	57383				
	Ueda et al, 2022 (Renal)					58	49404	64	57393				
22	Ueda et al, 2021 (Cholangiocarcinoma)	222	222577							128	123908		
	Ueda et al, 2021 (Cholangiocarcinoma)					92	96813			157	142578		

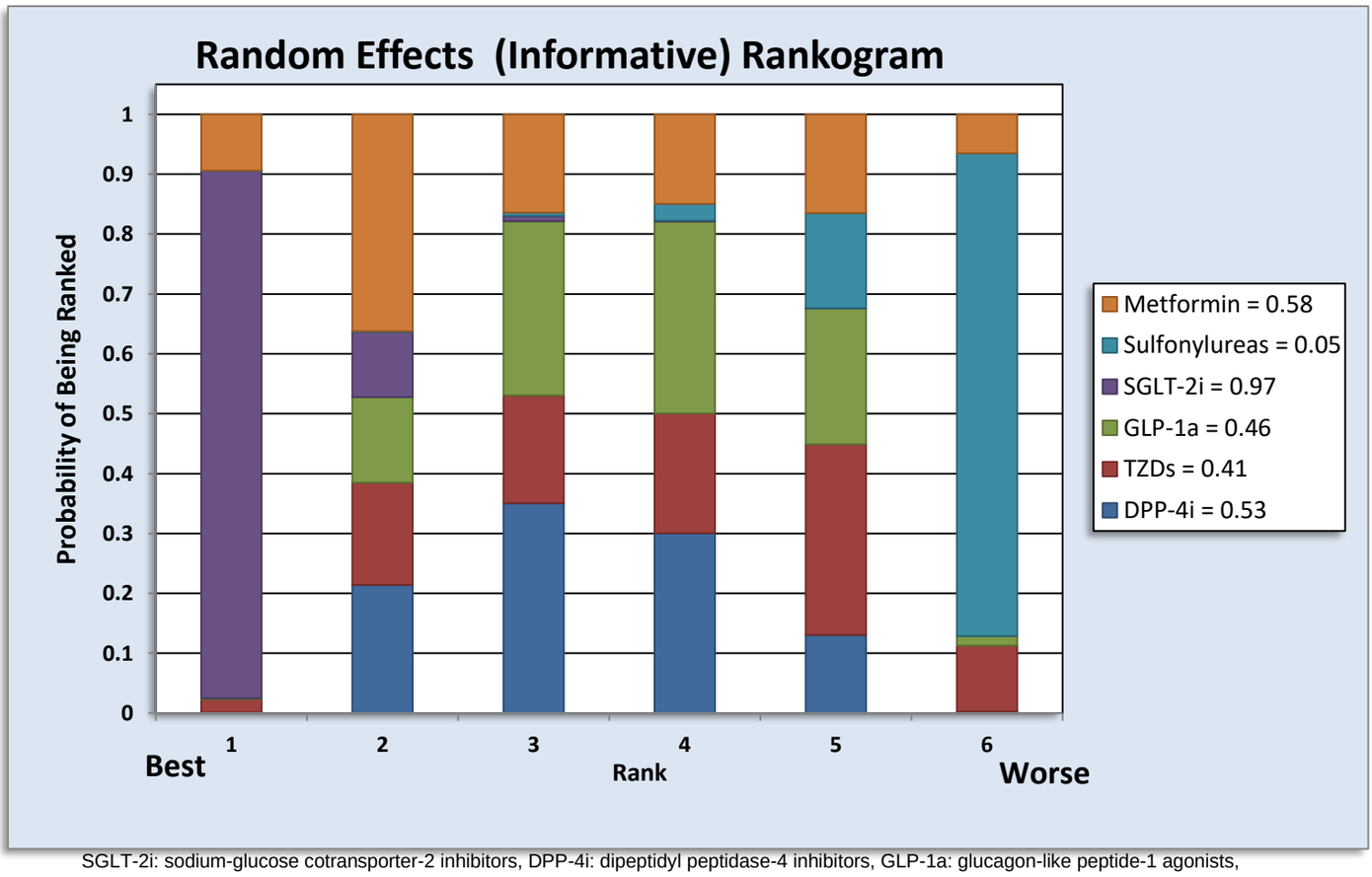
SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Figure 1. League table of the overall risk of cancer for all pairwise class comparisons.

SGLT-2i					
0.75 (0.47 – 1.17)	**Metformin**				
0.72 (0.57 – 0.90)	0.96 (0.63 – 1.47)	**DPP-4i**			
0.70 (0.53 – 0.91)	0.93 (0.61 – 1.42)	0.97 (0.76 – 1.24)	**GLP-1a**		
0.67 (0.46 – 1.00)	0.90 (0.54 – 1.52)	0.94 (0.67 – 1.33)	0.97 (0.67 – 1.42)	**TZDs**	
0.54 (0.40 – 0.73)	0.72 (0.46 – 1.13)	0.75 (0.60 – 0.95)	0.77 (0.60 – 1.01)	0.80 (0.54 – 1.18)	**Sulfonylureas**

SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Figure 2. Rankogram and SUCRA scores for the overall risk of cancer NMA.



SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Figure 3. Inconsistency graph for the overall risk of cancer NMA.

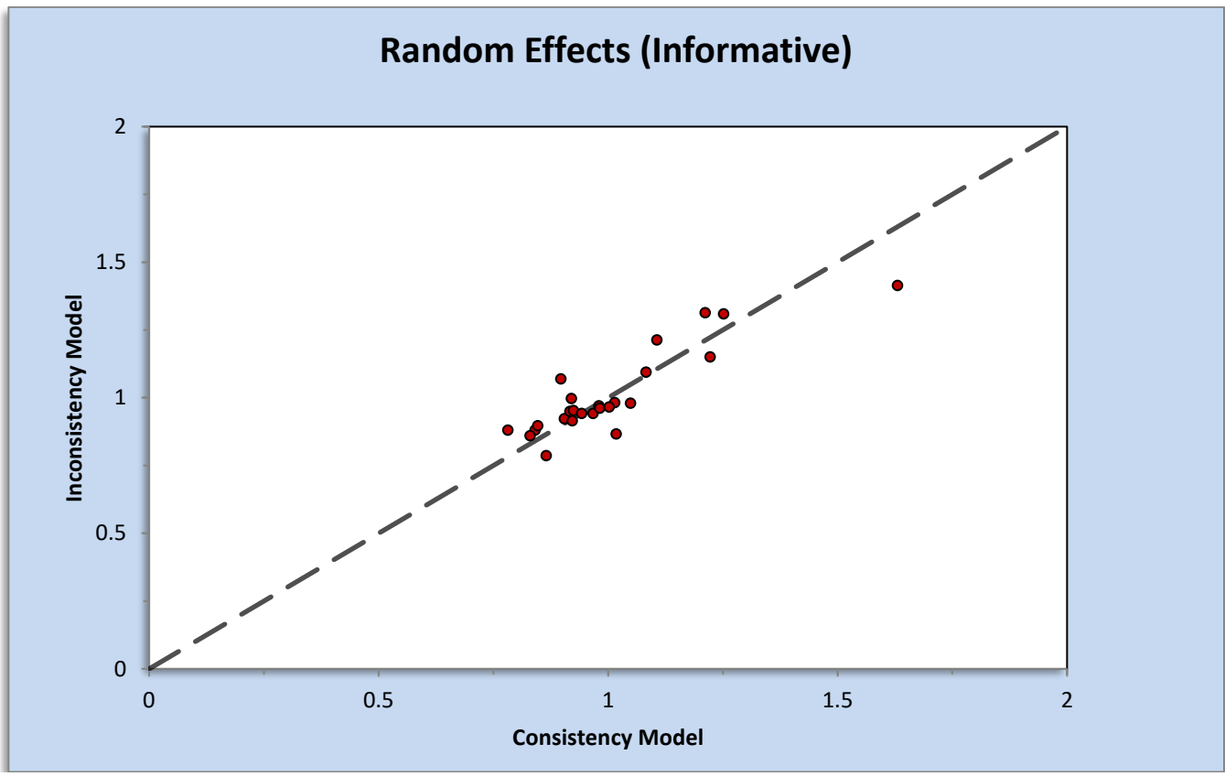
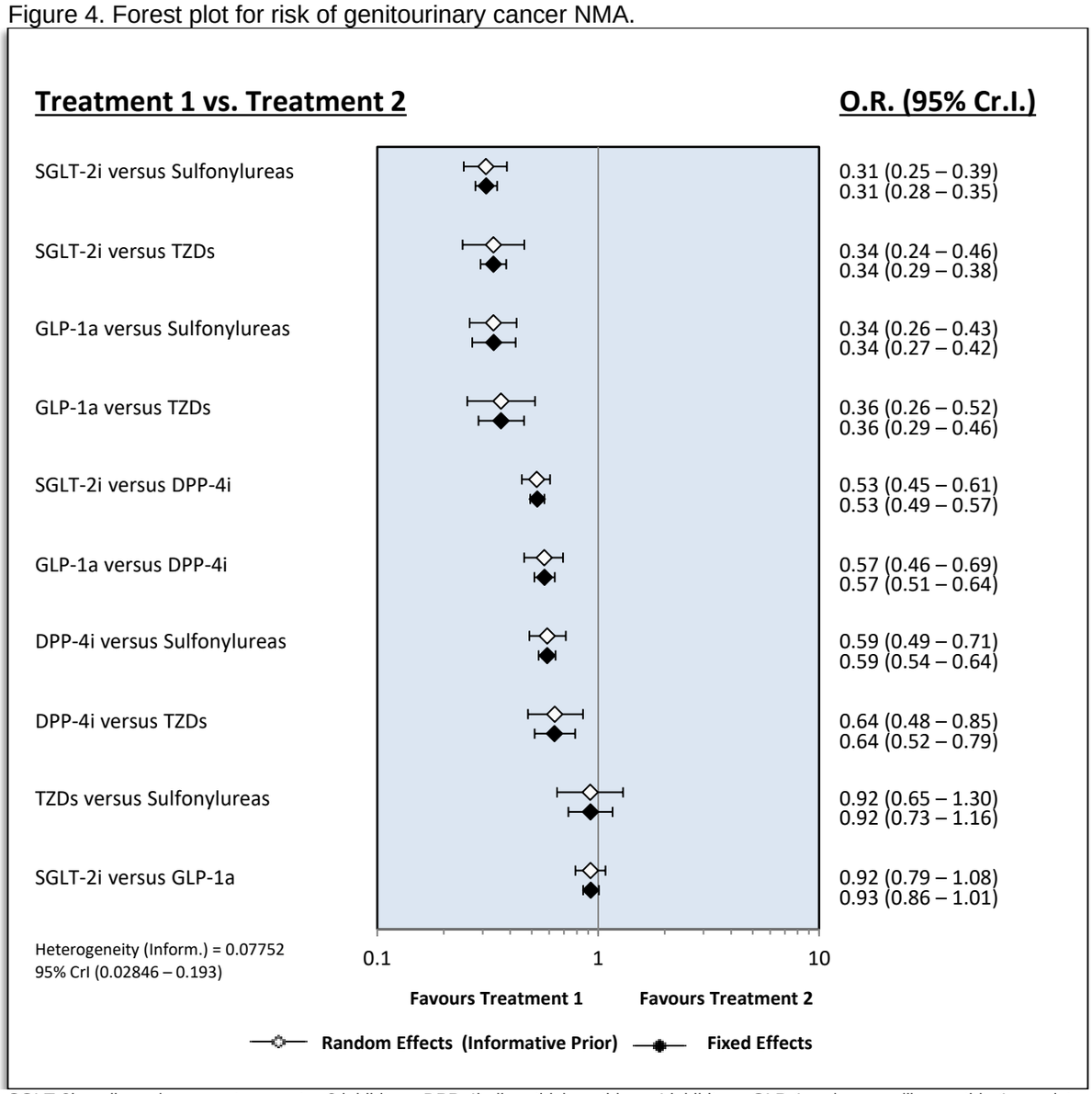
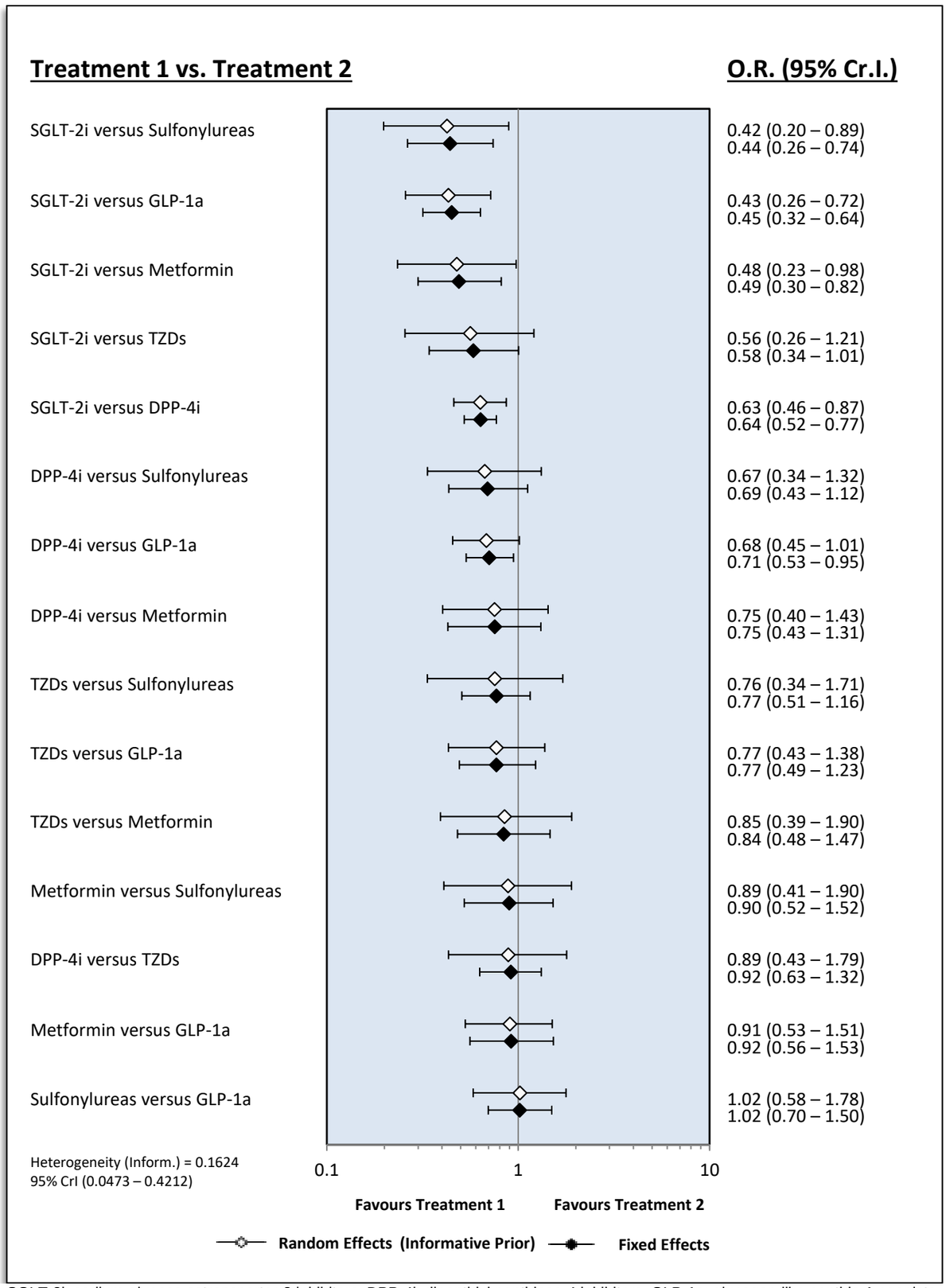


Figure 4. Forest plot for risk of genitourinary cancer NMA.



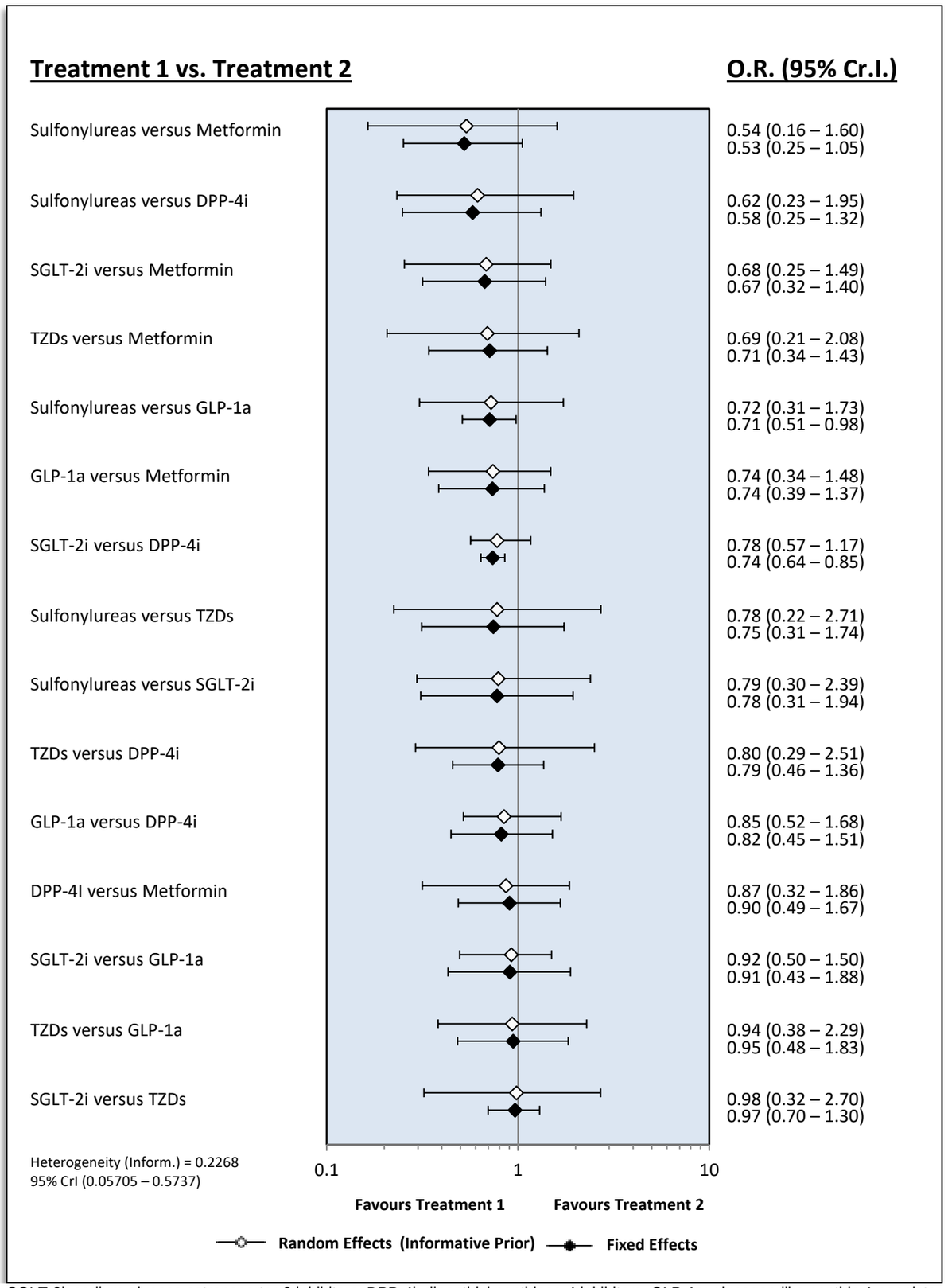
SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Figure 5. Forest plot for risk of Breast cancer NMA.



SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Figure 6. Forest plot for Head, Neck, and Respiratory/Thoracic cancers NMA.



SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones.

Table 7. The Number of Site-specific cancer events within Each Comparison.

Gastrointestinal Cancer												
Number	Treatment Name	DPP-4i		TZDs		GLP-1a		SGLT-2i		Sulfonylureas		Metformin	
	Study Name	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients
1	Abrahami et al. 2018 (Colorectal)	117	6002							241	18513		
	Abrahami et al. 2018 (Colorectal)					26	1177			302	18513		
2	Chan et al. 2023 (Colorectal)	106	12659					66	12659				
3	Choi et al, 2019 (Gastrointestinal)	9	769									17	769
4	Chou et al, 2023 (Pancreas)	42	6479					10	6479				
5	Chung et al, 2022 (Gastrointestinal)	196	18167					129	18167				
6	Gokhale et al. 2014 (Pancreas)	26	18179							177	63746		
	Gokhale et al. 2014 (Pancreas)	52	29366	54	26332								
7	Htoo et al. 2016 (Colorectal)	104	39334	63	25786								
	Htoo et al. 2016 (Colorectal)	73	27047							266	76012		
8	Kubota et al. 2022 (Pancreas)	142	61430	6	3329			11	9221	13	4774	22	17324
9	Rokszin et al .2021 (Lower GI)	59	17869					48	18023				
	Rokszin et al .2021 (Rectum)	23	17833					25	18000				
	Rokszin et al .2021 (Pancreas)	30	17840					34	18009				
10	Shin et al. 2016 (Pancreas)	2	1620									4	3240
11	Ueda et al. 2021 (Cholangiocarcinoma)	222	222577							128	123908		
	Ueda et al. 2021 (Cholangiocarcinoma)					92	96813			157	142578		
Breast Cancer													
Number	Treatment Name	DPP-4i		TZDs		GLP-1a		SGLT-2i		Sulfonylureas		Metformin	
	Study Name	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients
1	Choi et al, 2019	3	333									3	330
2	Chung et al, 2022	69	18167					32	18167				
3	Funch et al, 2018	62	12173			67	12173						
	Funch et al, 2018					56	11934					52	11934
	Funch et al, 2018					53	12418			54	12418		
	Funch et al, 2018			41	8009	53	8009						

4	Hicks et al, 2016	68	2422			31	498						
5	Rokszin et al, 2021	50	17860					43	18018				
6	Suissa et al, 2021	382	36631					67	9938				
Head, neck, and respiratory/thoracic risk Cancer													
Number	Treatment Name	DPP-4i		TZDs		GLP-1a		SGLT-2i		Sulfonylureas		Metformin	
	Study Name	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients
1	Bea et al, 2023 (Thyroid)	1386	904300					123	112017				
	Bea et al, 2023 (Thyroid)					23	21722	524	326993				
2	Choi et al, 2019 (Thymus and Lung)	1	769									6	769
3	Chung et al, 2022 (Lung)	82	18167					42	18167				
4	Funch et al, 2021 (Thyroid)	16	25579			24	25579						
	Funch et al, 2021 (Thyroid)					23	24747					23	24747
	Funch et al, 2021 (Thyroid)					23	26076			17	26076		
	Funch et al, 2021 (Thyroid)			17	18210	18	18210						
5	Rokszin et al, 2021 (Lung and Larynx)	61	17871					53	18028				
Genitourinary Cancer													
Number	Treatment Name	DPP-4i		TZDs		GLP-1a		SGLT-2i		Sulfonylureas			
	Study Name	Events	Patients	Events	Patients	Events	Patients	Events	Patients	Events	Patients		
1	Abrahami et al, 2022 (Bladder)					932	375997	1046	453560				
	Abrahami et al, 2022 (Bladder)	3421	853186					743	347059				
2	Chung et al, 2022 (Bladder)	39	18167					11	18167				
	Chung et al, 2022 (Genitourinary)	82	18167					39	18167				
3	Garry et al, 2018 (Bladder)	193	61438	147	29651								
4	Li et al, 2021 (Bladder)			4	10547			1	3359				
5	Lu et al, 2022 (Prostate)					34	5063			2157	112955		
	Lu et al, 2022 (Prostate)	611	53529							2208	114417		
6	Rokszin et al, 2021 (Prostate)	46	17856					33	18008				
	Rokszin et al, 2021 (Urinary tract)	54	17864					29	18004				
7	Ueda et al, 2022 (Bladder)					70	49398	73	57383				
	Ueda et al, 2022 (Kidney)					58	49404	64	57393				

SGLT-2i: sodium-glucose cotransporter-2 inhibitors, DPP-4i: dipeptidyl peptidase-4 inhibitors, GLP-1a: glucagon-like peptide-1 agonists, TZDs: Thiazolidinediones, GI: gastrointestinal