Supplemental material

Table S1. Ovid Medline search strategy

#	Searches
1	COVID-19.rx,px,ox. or severe acute respiratory syndrome coronavirus 2.os.
2	("COVID-19" or COVID19 or "COVID 2019" or "novel coronavirus" or "SARS-CoV" or "SARS-CoV-2" or "SARS2" or "2019-nCoV" or ncov19 or ncov-19 or "2019-novel CoV" or sarscov2 or sarscov-2 or Sars-coronavirus2 or Sars-coronavirus-2 or SARS-like coronavirus* or coronavirus-19).ti,ab,kf.
3	(coronavirus* or "corona virus*").ti,kf.
4	Coronavirus Infections/
5	or/1-4
6	20191201:20301231.(dt).
7	5 and 6 [COVID-19, SARS-COV-2]
8	limit 7 to english language
9	exp Neoplasms/
10	(cancer* or carcinom* or tumor* or tumour* or neoplas* or malignan* or metasta* or myeloma* or leuk?emia* or lymphoma* or sarcoma* or melanoma* or oncolog*).ti,ab,kf.
11	9 or 10 [Cancer]
12	8 and 11
13	(checkpoint adj3 (inhibitor* or modulator* or antibod* or block*)).ti,kf,rn.
14	(checkpoint and (inhibitor* or modulator* or antibod* or block*)).nm.
15	(checkpoint adj3 (inhibitor* or modulator* or antibod* or block*)).ab.
16	(("cytotoxic T lymphocyte associated" adj3 "4") or "CTLA 4" or CTLA4).ti,kf,rn.
17	("Cytotoxic t-lymphocyte antigen" adj3 "4").ti,kf,rn.
18	("Cytotoxic t-lymphocyte antigen" or "cytotoxic T lymphocyte associated").nm.
19	(ipilimumab or "MDX CTLA 4" or Yervoy or "MDX 010" or MDX010 or "BMS-734016" or BMS734016).mp.
20	("Programmed Cell Death 1" or PD1 or "PD 1").ti,kf,rn,nm.

21	(pembrolizumab or Keytruda or Lambrolizumab or "Merck 3475" or Merck3475 or "MK 3475" or MK3475 or "Sch 900475" or Sch900475 or "HSDB 8257").mp.
22	(nivolumab or "BMS 936558" or BMS936558 or "MDX 1106" or MDX1106 or "ONO 4538" or ONO4538 or Opdivo).mp.
23	("AMP 514" or AMP514 or MEDI0680 or "MEDI 0680").mp.
24	("programmed death ligand 1" or "PD L1" or PDL1 or "B7-H1" or B7HI).ti,kf,rn,nm.
25	(atezolizumab or Tecentriq or MPDL3280A or "MPDL 3280A" or RO5541267 or RO-5541267 or RG 7446 or RG7446 or "CD274 ANTIGEN" or "CD274 protein").mp.
26	(durvalumab or imfinzi or "MEDI 4736" or MEDI4736).mp.
27	(avelumab or Bavencio or MSB0010718C or "MSB 0010718C" or MSB0010682).mp.
28	("BMS 936559" or BMS936559 or MDX1105 or "MDX 1105").mp.
29	(Cemiplimab or libtayo or REGN2810 or "REGN 2810").mp.
30	or/13-29
31	12 and 30 [COVID-19 + cancer patients + immunotherapy (checkpoint inhibitors)]
32	exp Vaccines/
33	exp Vaccination/
34	"vaccin*".rn,ox,px,rx.
35	vaccin*.mp.
36	((covid* or covid19 or covid-19 or SARS-COV-2 or coronavirus) and immuniz*).ti,ab,kf.
37	(Novavax or "NVX-CoV2373" or NUVAXOVID* or COVOVAX* or Moderna* or "mRNA-1273" or Pfizer* or BioNTech* or BNT162b2* or Janssen* or "Ad26.COV2.S" or AZD1222 or AstraZeneca* or Covishield or Covaxin* or "Bharat Biotech" or Sinopharm or "BBIBP-CorV" or Sinovac or CoronaVac*).mp. [WHO approved Covid-19 vaccines]
38	or/32-37 [COVID-19 vaccines]
39	31 and 38

Table S2. Ovid Embase search strategy

#	Searches
1	("COVID-19" or COVID19 or "COVID 2019" or "novel coronavirus" or "SARS-CoV" or "SARS-CoV-2" or "SARS2" or "2019-nCoV" or ncov19 or ncov-19 or "2019-novel CoV" or sarscov2 or sarscov-2 or Sars-coronavirus2 or Sars-coronavirus-2 or SARS-like coronavirus* or coronavirus-19).ti,ab,kw.
2	(coronavirus* or "corona virus*").ti.
3	severe acute respiratory syndrome/
4	coronavirus infection/
5	"coronavirus disease 2019"/
6	or/1-5
7	limit 6 to english language
8	limit 7 to dc=20191201-20221231
9	exp malignant neoplasm/
10	(cancer* or neoplas* or tumo?r* or leuk?emia* or lymphoma* or melanoma* or carcinoma* or sarcoma* or oncolog*).ti,ab,kw.
11	9 or 10
12	8 and 11
13	(immun* adj3 checkpoint adj3 (inhibitor* or modulator* or antibod* or block*)).ti,hw,kw.
14	(("cytotoxic T lymphocyte associated" adj3 "4") or "CTLA 4" or CTLA4).ti,kw,hw.
15	("Cytotoxic t-lymphocyte antigen" adj3 "4").ti,kw,hw.
16	(ipilimumab or "MDX CTLA 4" or Yervoy or "MDX 010" or MDX010 or "BMS-734016" or BMS734016).ti,ab,hw,kw,du,tn.
17	("Programmed Cell Death 1" or PD1 or "PD 1").ti,kw,hw,du,tn.
18	(pembrolizumab or Keytruda or Lambrolizumab or "Merck 3475" or Merck3475 or "MK 3475" or MK3475 or "Sch 900475" or Sch900475 or "HSDB 8257").ti,ab,kw,hw,du,tn.
19	(nivolumab or "BMS 936558" or BMS936558 or "MDX 1106" or MDX1106 or "ONO 4538" or ONO4538 or Opdivo).ti,ab,kw,hw,du,tn.
20	("programmed death ligand 1" or "PD L1" or PDL1 or "B7-H1" or B7HI).ti,kw,hw.

21	(atezolizumab or Tecentriq or MPDL3280A or "MPDL 3280A" or RO5541267 or RO-5541267 or RG 7446 or RG7446 or "CD274 ANTIGEN" or "CD274 protein").ti,ab,kw,hw,du,tn.
22	(avelumab or Bavencio or MSB0010718C or "MSB 0010718C" or MSB0010682).ti,ab,kw,hw,du,tn.
23	(Cemiplimab or libtayo or REGN2810 or "REGN 2810").ti,ab,kw,hw,du,tn.
24	(durvalumab or imfinzi or "MEDI 4736" or MEDI4736).ti,ab,kw,hw,du,tn.
25	or/13-24
26	12 and 25
27	exp vaccine/
28	exp vaccination/
29	vaccin*.ti,ab,kf.
30	exp vaccination reaction/
31	vaccination refusal/
32	((covid* or covid19 or covid-19 or SARS-COV-2 or coronavirus) and immuniz*).ti,ab,kf.
33	(Novavax or "NVX-CoV2373" or NUVAXOVID* or COVOVAX* or Moderna* or "mRNA-1273" or Pfizer* or BioNTech* or BNT162b2* or Janssen* or "Ad26.COV2.S" or AZD1222 or AstraZeneca* or Covishield or Covaxin* or "Bharat Biotech" or Sinopharm or "BBIBP-CorV" or Sinovac or CoronaVac*).mp. [WHO approved Covid-19 vaccines]
34	exp immunization/
35	or/27-34
36	26 and 35

Table S3. Types of cancer and funding for each study

Study ID	Types of cancer	Funding
Agbarya 2021[13]	Gastrointestinal, breast, lung, urinary, gynecological, other	None
Au 2021[14]	Colorectal cancer	CAPTURE study - Royal Marsden Cancer Charity Programme
Blaise 2021[15]	Melanoma	None
Buttiron-Webber 2021[16]	Digestive, lung, breast, genitourinary and gynecologic, other.	Association WeCare and the Lions Club of Genoa Sant'Agata and the Italian Minister of Health
Chen 2021[17]	Lung cancer, melanoma, kidney cancer, gastrointestinal, hepatic cancer, head and neck, other.	NR
Di Giacomo 2021[18]	Skin cancer, thoracic malignancies, glioblastoma.	None
Figueiredo 2021[19]	Breast, gastrointestinal, melanoma, thoracic, lymphoma, leukemia, myeloma, other	NCI-funded Serological Sciences Network (SeroNet)
Lasagna 2021[20]	Lung, melanoma, head and neck, bladder, breast, squamous cell skin cancer	Ricersa Corrente, Fondazione IRCCS Policlinico San Matteo, Ricerca Finalizzata, European Commission-Horizon 2020
Ligumsky 2021[21]	Gastrointestinal, breast, gynecological, genitourinary, skim cancer, melanoma, central nervous system, sarcoma, head and neck, non-small cell lung cancer	None
Ma 2021[22]	Head and neck, gastrointestinal, non-small cell lung cancer	Guangdong science and technology special fund mayor project and Shantou City Science and Technology Plan Project and 2020 Li Ka Shing Foundation Cross-Disciplinary Research Grant and the Fellowship of China Postdocteral Science Foundation and National Natural Science Foundation of China Youth Science Fund Project and National Natural Science Foundation of China Youth Science Fund Project
Massarweh 2021[23]	Gastrointestinal, lung, breast, brain, genitourinary, other.	NR
Mieczkowska 2021[24]	Hepatocellular carcinoma	NR
Naranbhai 2021[42]	Thoracic cancer, breast, melanoma, Merkel cell cancer, head and neck, gastrointestinal, leukemia, lymphoma, myeloproliferative neoplasm or myelodysplastic syndrome	Lambertus Family Foundation
Oosting 2021 (VOICE trial)[26]	Bone or soft tissue, breast, central nervous system, digestive tract, endocrine glands, female genital organs, head and neck, male genital organs, respiratory tract, skin, urinary tract, other.	The Netherlands Organization for Health Research and Development
Strobel 2021[27]	Skin cancer	Projekt DEAL

Subbiah 2021[32]	Breast, genitourinary, thoracic, hematologic, head and neck, colorectal cancer.	American Cancer Society, the Andrew Sabin Family Foundation, Gabrielle's Angels Foundation, Cancer and Aging Research Group (CARG) R21/R33 Infrastructure Grant, Gabrielle's Angel Foundation For Cancer Research U.S. National Institutes of Health
Svoboda 2021[29]	*Hodgkin lymphoma*	NR
Thakkar 2021[30]	Breast, gastrointestinal, genitourinary, gynecological, thoracic, head and neck, skin, musculoskeletal, carcinoma of unknown primary, lymphoid malignancy, myeloid malignancy, plasma cell malignancy	NR
Waissengrin 2021[31]	Lung, genitourinary, gastrointestinal, melanoma, others	None

NA=not applicable; NR=not reported; ICI=immune checkpoint inhibitor; PD-1= programmed cell death 1; PD-L1=programmed cell death ligand 1; [a]patients' relatives, health-care workers, and volunteers, [b]Includes patients receiving other treatments plus ICI

Table S4. Results of individual cohort studies

Study ID	ICI Events/Total (%)	Chemotherapy events/total (%)	Cancer patients with no active treatment Events/Total (%)	Individuals without cancer Events/Total (%)	Comments
Seroconversion					
Agbarya 2021	23/26 (88.5)	57/70 (81.4)	-	25/26 (96.2)	-
Buttiron Webber 2021	20/21 (95.2)	92/115 (80)	61/62 (98.4)	-	-
Di Giacomo 2021	69/70 (98.6)	13/28 (46.4)	-	42/42 (100)	-
Figueiredo 2021	27/29 (93.1)	26/26 (100)	13/13 (100)	-	-
Lasagna 2021	68/88 (77)	-	-	-	-
Ligumsky 2021	50/55 (90.9)	82/101 (81.2)	-	159/164 (96.9)	-
Ma 2021	94/138 (68.1)	-	-	111/138 (80.4)	Sinovac and Sinopharm
Massarweh 2021	22/22 (100)	28/30 (93.3)	-	78/78 (100)	-
Naranbhai 2021	53/54 (98.1)	73/77 (94.8)	148/153 (96.7)	-	-
Oosting 2021	130/131 (99.2)	223/229 (97.4)	-	240/240 (100)	-
Svoboda 2021	11/12 (92)	-	-	-	-
Thakkar 2021	30/31 (96.8)	90/102 (88.2)	-	55/59 (93.2)	-
Immune related adverse events					
Lasagna 2021	1/88 (1.1)	-	-	-	1 patient had colitis and hepatitis grade 3

Ma 2021	Pneumonitis: vaccinated 7/127 (5.5) vs no vaccinated 8/127 (6.3) Rash: vaccinated 30/127 (23.6) vs no vaccinated 29/127 (22.8) Arthralgia: vaccinated 17/127 (13.4) vs no vaccinated 18/127 (14.2) Liver function test: vaccinated 16/127 (12.6) vs no vaccinated 15/127 (15.8) Diarrhea: vaccinated 9/127 (7.1) vs no vaccinated 11/127 (8.7)	-	-	-	
Chen 2021	0/84	-	-	-	-
Oosting 2021	13/300 (4.3)[a]	-	-	-	Most low grade. 1 died from pneumonitis, 1 grade 3 adrenal insufficiency, 1 grade 3 thrombocytopenia
Strobel 2021	15/85 (17)				8 patients grade 3: 3 colitis, 1 hepatitis, 2 myositis, 1 myocarditis, 1 both colitis and thyroiditis.
Waissengrin 2021	0/134				
Vaccine related adverse events					
Naranbhai 2021	-	-	-	-	All cancer patients: 507/671 (75.6%) local or systemic. 89% mild or moderate
Oosting 2021	Fatigue: 78/132 (59)	111/227 (48.9)	-	129/238 (54.2)	-
	Pain: 8/132 (6)	11/227 (5)	-	9/238 (4)	-
	Grade 3 or worse: 3/137 (2)	6/244 (2)	-	0/240	-
Strobel 2021	Moderate pain 24/85 (40) Fatigue 20/85 (24)	-	-	-	-
Lasagna 2021	24/88 (27.3)	-	-	-	22 had pain at site of injection, 2 fever

Ligumsky 2021	-	-	-	-	183/326 (56.1%). Local pain: 19.6%; weakness: 17.5%; myalgia: 12.6%; headache: 6.4%
Ma 2021	Rash: 35/134 (26.1)	-	-	-	No ICI. Rash 10/134 (7.5%)
Buttiron Webber 2021	-	-	-	-	Cancer patients on active treatment (all treatments): 43/291 (14.8%), mostly mild or moderate
Subbiah 2021	-	-	-	-	Patients with prior ICI had higher increase in itch and rash from their baseline vs patients without systemic treatment ($p < 0.05$).
Svoboda 2021	Pain: 7/12 (58) Fatigue: 5/12 (42)	-	-	-	All adverse events were grade 1 or 2
Waissengrin 2021	Pain: 85/134 (63) Fatigue: 45/134 (34)	-	-	-	None of them required admission to hospital or any other special intervention

[a]includes patients who received chemoimmunotherapy; ICI=immune checkpoint inhibitors

Table S5. Risk of bias of studies included for analysis

Author	Selection				Comparability		Outcome			Total score
	Representa-tiveness of exposed cohort	*Selection of non-exposed cohort*	*Ascertain-ment of exposure*	*Demonstration that outcome of interest was not present at start of study, OR baseline assessment*	*Adjust for the most important risk factors*	*Adjust for other risk factors*	*Assessment of outcome*	*Follow-up length*	*Loss to follow-up rate*	
Agbarya 2021[i]										3
Buttiron Webber 2021										5
Chen 2021										3
Di Giacomo 2021										5
Figueiredo 2021										7
Lasagna 2021		NA								4
Ligumsky 2021										3
Ma 2021										8
Massarweh 2021										5
Naranbhai 2022										8
Oosting 2021										8
Strobel 2021										3
Subbiah 2021										6
Svoboda 2021										3
Thakkar 2021										4
Waissengrin 2021										4

[i]Cross-sectional study for which we only assessed the domains not related to cohort studies

Table S6. Summary of findings table for the comparison: cancer patients treated with ICI versus individuals without cancer

Safety and efficacy of COVID-19 vaccination in cancer patients treated with ICI compared with individuals without cancer

Patient or population: patients who received COVID-19 vaccine
Setting: outpatient
Intervention: ICI
Comparison: individuals without cancer

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with individuals without cancer	Risk with ICI				
COVID-19 infection, Severe COVID-19, COVID-19 mortality	Not reported					
Seroconversion assessed with: Proportion of patients' seroconversion: follow-up: median 30 days	950 per 1,000	**922 per 1,000** (874 to 979)	**RR 0.97** (0.92 to 1.03)	1237 (5 observational studies)	⊕◯◯◯ Very low[a,b,c]	We are uncertain whether cancer patients treated with ICI have a lower seroconversion rate after the COVID-19 vaccination compared with individuals without cancer

CI=confidence interval; RR= risk ratio; ICI=immune checkpoint inhibitor; GRADE=Grading of Recommendations, Assessment, Development and Evaluations
Explanations
a. Representativeness of exposed cohort and the adjustment for risk factors were the important items that were not accomplished in most of studies
b. The true effect could either benefit or harm the patient
c. Seroconversion is considered a surrogate outcome and we rated down for indirectness

Table S7. Summary of findings for the comparison: cancer patients treated with ICI versus cancer patients without active treatment

Safety and efficacy of COVID-19 vaccination in cancer patients treated with ICI compared with cancer patients without active treatment

Safety and efficacy of COVID-19 vaccination in cancer patients treated with ICI compared with cancer patients treated with chemotherapy

Patient or population: patients who receive COVID-19 vaccine
Setting: outpatient
Intervention: ICI
Comparison: no active treatment

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with no active treatment	Risk with ICI				
COVID-19 infection, Severe COVID-19, COVID-19 mortality	Not reported					
Seroconversion follow-up: median 30 days	974 per 1,000	**974 per 1,000** (935 to 1,000)	**RR 1.00** (0.96 to 1.04)	332 (3 observational studies)	⊕◯◯◯ Very low[a,b,c]	We are uncertain whether cancer patients treated with ICI have a higher seroconversion rate after the COVID-19 vaccination compared with cancer patients without active treatment

CI=confidence interval; RR= risk ratio; ICI=immune checkpoint inhibitor; GRADE=Grading of Recommendations, Assessment, Development and Evaluations
Explanations
a. Representativeness of exposed cohort and the adjustment for risk factors were the important items that were not accomplished in most of studies
b. The true effect could either benefit or harm the patient
c. Seroconversion is considered a surrogate outcome and we rated down for indirectness

Patient or population: Patients who receive COVID-19 vaccine
Setting: outpatient
Intervention: ICI
Comparison: chemotherapy

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Chemotherapy	Risk with ICI				
COVID-19 infection, Severe COVID-19, COVID-19 mortality, follow-up: median 10 weeks	No events were reported		-	(3 observational studies)	⊕◯◯◯ Very low[a,b]	-
Seroconversion assessed with: Proportion of patients with seroconversion: follow-up: median 30 days	879 per 1,000	**958 per 1,000** (879 to 1,000)	**RR 1.09** (1.00 to 1.18)	1217 (9 observational studies)	⊕◯◯◯ Very low[a,b,c]	We are uncertain whether cancer patients treated with ICI have a higher seroconversion rate after the COVID-19 vaccination compared with cancer patients treated with chemotherapy
Vaccine related adverse events (grade 3 or more): follow-up: median 30 days	8 per 1,000	**8 per 1,000** (2 to 29)	**RR 0.98** (0.23 to 3.50)	381 (1 study)	⊕◯◯◯ Very Low[d]	We are uncertain whether cancer patients treated with ICI have lower risk of grade 3 or more VrAE after mRNA vaccination compared to cancer patients treated with chemotherapy

CI=confidence interval; RR= risk ratio; ICI=immune checkpoint inhibitor; GRADE=Grading of Recommendations, Assessment, Development and Evaluations
Explanations
a. Representativeness of exposed cohort and the adjustment for risk factors were the important items that were not accomplished in most of studies
b. The true effect could either benefit or harm the patient
c. Seroconversion is considered a surrogate outcome and we rated down for indirectness
d. Low number of events and the true effect could either benefit or harm the patient

Table S8. Summary of findings for the comparison: cancer patients treated with ICI versus cancer patients treated with chemotherapy

Table S9. Excluded studies

Study ID	Reference	Reason for exclusion
Aalberg 2021	Aalberg JJ, Collins TP, Dobrow EM. Axillary lymphadenopathy in a renal cell carcinoma patient after COVID-19 Vaccination. Radiol Case Rep. 2021 Aug;16(8):2164-2167. doi: 10.1016/j.radcr.2021.05.031. Epub 2021 Jun 11. PMID: 34149984; PMCID: PMC8194501.	Outcome: not unusual adverse event
Brest 2021	Brest P, Mograbi B, Hofman P, Milano G. COVID-19 vaccination and cancer immunotherapy: should they stick together? Br J Cancer. 2022 Jan;126(1):1-3. doi: 10.1038/s41416-021-01618-0. Epub 2021 Nov 19. PMID: 34799696; PMCID: PMC8603902.	Study design
Da Cruz 2021	Tomas TD, Eiriz IF, Vitorino M, Vicente RS, Mendes AD, Sousa MS, Braga S, Fiuza TM, Gonçalves LA, Gonçalves CP, Demengeot J. 1602P COVID-19 vaccination efficacy in cancer patients: An ongoing prospective trial. Annals of Oncology. 2021 Sep 1;32:S1147.	Intervention: no ICI
Gauci 2021	Gauci ML, Coutzac C, Houot R, Marabelle A, Lebbé C; FITC. SARS-CoV-2 vaccines for cancer patients treated with immunotherapies: Recommendations from the French society for ImmunoTherapy of Cancer (FITC). Eur J Cancer. 2021 May;148:121-123. doi: 10.1016/j.ejca.2021.02.003. Epub 2021 Feb 18. PMID: 33743480; PMCID: PMC7891073.	Wrong study design
Gomez 2021	Gomez J, Krammer F, Mack P, Rolfo C, Rohs N, Moore A, King J, Henschke C, Yankelevitz D, Shyr Y, Taioli E. Analysis of lung cancer patients receiving SARS-CoV-2 vaccines revealed a minority subset with poor antibody responses relative to controls. Journal of Thoracic Oncology. 2021:S848-.	Intervention: data for ICI not reported separated
Hughes 2021	Hughes NM, Hammer MM, Awad MM, Jacene HA. Radiation Recall Pneumonitis on FDG PET/CT Triggered by COVID-19 Vaccination. Clin Nucl Med. 2022 Mar 1;47(3):e281-e283. doi: 10.1097/RLU.0000000000003980. PMID: 34739397; PMCID: PMC8820752.	Outcome: any adverse event
Hwang 2021	Hwang JK, Zhang T, Wang AZ, Li Z. COVID-19 vaccines for patients with cancer: benefits likely outweigh risks. J Hematol Oncol. 2021 Feb 27;14(1):38. doi: 10.1186/s13045-021-01046-w. PMID: 33640005; PMCID: PMC7910769.	Wrong study design
Karacin 2021	Karacin C, Eren T, Zeynelgil E, Imamoglu GI, Altinbas M, Karadag I, Basal FB, Bilgetekin I, Sutcuoglu O, Yazici O, Ozdemir N, Ozet A, Yildiz Y, Esen SA, Ucar G, Uncu D, Dinc B, Aykan MB, Erturk İ, Karadurmus N, Civelek B, Çelik İ, Ergun Y, Dogan M, Oksuzoglu OB. Immunogenicity and safety of the CoronaVac vaccine in patients with cancer receiving active systemic therapy. Future Oncol. 2021 Nov;17(33):4447-4456. doi: 10.2217/fon-2021-0597. Epub 2021 Aug 3. PMID: 34342517; PMCID: PMC8336634.	Intervention: less than 3 patients on ICI
Lasagna 2021	AIOM abstracts. Tumori Journal. 2021;107(2_suppl):1-188. doi:10.1177/03008916211041664	Congress abstract: results are the same for Lasagna 2021

Lasagna 2022	Lasagna A, Lilleri D, Agustoni F, Percivalle E, Borgetto S, Alessio N, Comolli G, Sarasini A, Bergami F, Sammartino JC, Ferrari A, Zavaglio F, Arena F, Secondino S, Falzoni M, Schiavo R, Lo Cascio G, Cavanna L, Baldanti F, Pedrazzoli P, Cassaniti I. Analysis of the humoral and cellular immune response after a full course of BNT162b2 anti-SARS-CoV-2 vaccine in cancer patients treated with PD-1/PD-L1 inhibitors with or without chemotherapy: an update after 6 months of follow-up. ESMO Open. 2022 Feb;7(1):100359. doi: 10.1016/j.esmoop.2021.100359. Epub 2021 Dec 11. PMID: 34973510; PMCID: PMC8664661.	Outcome: humoral response at 6 months follow-up
Luo 2021	Luo B, Li J, Hou X, Yang Q, Zhou Y, Ye J, Wu X, Feng Y, Hu T, Xu Z, He Y, Sun J. Indications for and contraindications of immune checkpoint inhibitors in cancer patients with COVID-19 vaccination. Future Oncol. 2021 Sep;17(26):3477-3484. doi: 10.2217/fon-2021-0288. Epub 2021 Jun 30. PMID: 34189948; PMCID: PMC8244550.	Study design
Malek 2022	Malek AE, Cornejo PP, Daoud N, Alam M. The mRNA COVID-19 vaccine in patients with cancer receiving checkpoint inhibitor therapy: what we know and what we don't. Immunotherapy. 2022 Feb;14(2):91-94. doi: 10.2217/imt-2021-0235. Epub 2021 Nov 8. PMID: 34747190; PMCID: PMC8582594.	Study design
Malissen 2021	Malissen N, Ninove L, de Lamballerie X, André N, Gaudy-Marqueste C. Safety and immunogenicity after 2 doses of the BNT162b2 COVID-19 vaccine in an early-phase oncology trial centre population. Eur J Cancer. 2021 Oct;156:125-126. doi: 10.1016/j.ejca.2021.07.040. Epub 2021 Aug 10. PMID: 34438245; PMCID: PMC8352671.	Intervention: data for ICI not reported separated
Monin 2021	Monin L, Laing AG, Muñoz-Ruiz M, McKenzie DR, Del Molino Del Barrio I, Alaguthurai T, Domingo-Vila C, Hayday TS, Graham C, Seow J, Abdul-Jawad S, Kamdar S, Harvey-Jones E, Graham R, Cooper J, Khan M, Vidler J, Kakkassery H, Sinha S, Davis R, Dupont L, Francos Quijorna I, O'Brien-Gore C, Lee PL, Eum J, Conde Poole M, Joseph M, Davies D, Wu Y, Swampillai A, North BV, Montes A, Harries M, Rigg A, Spicer J, Malim MH, Fields P, Patten P, Di Rosa F, Papa S, Tree T, Doores KJ, Hayday AC, Irshad S. Safety and immunogenicity of one versus two doses of the COVID-19 vaccine BNT162b2 for patients with cancer: interim analysis of a prospective observational study. Lancet Oncol. 2021 Jun;22(6):765-778. doi: 10.1016/S1470-2045(21)00213-8. Epub 2021 Apr 27. PMID: 33930323; PMCID: PMC8078907.	Intervention: outcomes measure after first dose in patients treated with ICI
Saini 2021	Saini KS, Martins-Branco D, Tagliamento M, Vidal L, Singh N, Punie K, Saini ML, Chico I, Curigliano G, de Azambuja E, Lambertini M. Emerging issues related to COVID-19 vaccination in patients with cancer. Oncol Ther. 2021 Dec;9(2):255-265. doi: 10.1007/s40487-021-00157-1. Epub 2021 Jun 16. PMID: 34137014; PMCID: PMC8208766.	Study design
Terpos 2021	Terpos E, Zagouri F, Liontos M, Sklirou AD, Koutsoukos K, Markellos C, Briasoulis A, Papanagnou ED, Trougakos IP, Dimopoulos MA. Low titers of SARS-CoV-2 neutralizing antibodies after first vaccination dose in cancer patients receiving checkpoint inhibitors. J Hematol Oncol. 2021 May 31;14(1):86. doi: 10.1186/s13045-021-01099-x. PMID: 34059088; PMCID: PMC8165511.	Intervention: 1 dose of the vaccine

Tougeron 2021	Tougeron D, Hentzien M, Seitz-Polski B, Bani-Sadr F, Bourhis J, Ducreux M, Gaujoux S, Gorphe P, Guiu B, Hoang-Xuan K, Huguet F, Lecomte T, Lièvre A, Louvet C, Maggiori L, Mansi L, Mariani P, Michel P, Servettaz A, Thariat J, Westeel V, Aparicio T, Blay JY, Bouché O; for Thésaurus National de Cancérologie Digestive (TNCD); réseau de Groupes Coopérateurs en Oncologie (GCO); Fédération Nationale des Centres de Lutte Contre le Cancer (UNICANCER); Association de Chirurgie Hépato-Bilio-Pancréatique et Transplantation (ACHBT); Association de Recherche sur les Cancers Gynécologiques-Groupes d'Investigateurs Nationaux pour l'étude des Cancers Ovariens et du Sein (ARCAGY-GINECO); Fédération Francophone de Cancérologie Digestive (FFCD); Groupe Coopérateur multidisciplinaire en Oncologie (GERCOR); Groupe d'Oncologie Radiothérapie Tête et Cou-Intergroupe ORL (GORTEC-Intergroupe ORL); Intergroupe Francophone de Cancérologie Thoracique (IFCT); InterGroupe Coopérateur de Neuro-Oncologie/Association des Neuro-Oncologues d'Expression Française (IGCNO-ANOCEF); Société Française de Chirurgie Digestive (SFCD); Société Française d'Endoscopie Digestive (SFED); Société Française de Radiothérapie Oncologique (SFRO); Société Française de Radiologie (SFR); Société Nationale Française de Colo-Proctologie (SNFCP); Société Nationale Française de Gastroentérologie (SNFGE). Severe acute respiratory syndrome coronavirus 2 vaccination for patients with solid cancer: Review and point of view of a French oncology intergroup (GCO, TNCD, UNICANCER). Eur J Cancer. 2021 Jun;150:232-239. doi: 10.1016/j.ejca.2021.03.030. Epub 2021 Apr 1. PMID: 33934060; PMCID: PMC8015403.	Study design
Yedekuz 2021	mRNA-based COVID-19 vaccines appear not to increase immune events in cancer patients receiving immune checkpoint inhibitors	Study design

ICI=immune checkpoint inhibitor