

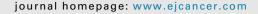
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Letter to the Editor

## Seroconversion after SARS-CoV-2 mRNA booster vaccine in cancer patients



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Giorgio Patelli <sup>a,b</sup>, Arianna Pani <sup>b,c</sup>, Alessio Amatu <sup>a</sup>, Francesco Scaglione <sup>b,c</sup>, Andrea Sartore-Bianchi <sup>a,b,\*</sup>

<sup>a</sup> SC Oncologia Falck, Dipartimento di Ematologia, Oncologia e Medicina Molecolare, Niguarda Cancer Center, Grande Ospedale Metropolitano Niguarda, Milan, Italy

<sup>b</sup> Dipartimento di Oncologia Ed Emato-Oncologia, Università Degli Studi di Milano (La Statale), Milan, Italy

<sup>c</sup> SC Analisi Chimico Cliniche e Microbiologia, Dipartimento Medicina di Laboratorio, Grande Ospedale Metropolitano Niguarda, Milan, Italy

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In the SINFONIA-V study published in the December 2021 edition of the European Journal of Cancer, we sowed that a 5.8% fraction of patients with solid tumours undergoing anticancer treatment do not achieve seroconversion after primary (two doses) SARS-CoV-2 messenger RNA (mRNA) vaccination with BNT162b2 or mRNA-1273 (10/171 individuals); this was significantly different compared with 0.2% of controls without cancer (P < 0.001) [1,2]. We report here updated data with the analysis of post-booster serological status in these patients (n = 10). Interestingly, we found that among 6 evaluable individuals with pre-boosting confirmed seronegativity, 2 (33%) developed anti-spike antibodies after boosting, whereas the remaining showed persistent seronegative status (Table 1). The median follow-up from booster to sampling was 21 days

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https://doi.org/10.1016/j.ejca.2022.02.032 0959-8049/© 2022 Elsevier Ltd. All rights reserved. [8-35]. A percentage of rescue by boosting has been demonstrated in other studies, but with higher incidence [3]. Indeed, Ligumsky et al. recently reported that in patients with solid tumours who lacked immunisation after primary SARS-CoV-2 vaccination, seroconversion took place after booster in 85% of 20 initially seronegative patients [3]. It should be acknowledged that no conclusions can be drawn based on such limited sample size. However, as the two cohorts were similar in terms of cancer type (100% solid tumours), median primaryto-booster time (200 versus 210 days), proportion receiving anticancer treatment (83% versus 100%), and prevalence of cytotoxic drugs in therapeutic regimens (67% versus 63%), we estimated the probability of seroconversion after booster in the pooled vaccinerefractory solid tumour population. In particular, our study leads to an estimate of 35.7% of seroconversion probability (95% confidence interval [CI] 7.7-71.4%), whereas combined data with Ligumsky as a prior show a final estimate posterior of 73.1% (95% CI 54.9-87.9%). In light of the few data available, such seroconversion probability has a wide uncertainty. However, both studies point in the same direction, showing an additional, although incomplete, efficacy of booster

<sup>\*</sup> Corresponding author: Falck Division of Oncology, Department of Hematology, Oncology and Molecular Medicine, ASST Grande Ospedale Metropolitano Niguarda, Piazza Ospedale Maggiore, 3, 20162 Milano, Italy.

*E-mail address:* andrea.sartorebianchi@unimi.it (A. Sartore-Bianchi).

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Post-booster serologic status of cancer patients lacking immunisation after primary SARS-CoV-2 vaccination (SINFONIA-V study) [1]

Patients	Patients Serology status Age Gender Comorbidities after boosting	Age	Gender	Comorbidities	ECOG PS	Primary tumour	Stage	Cancer therapy at the time of primary vaccination	Cancer therapy at the time of boosting	Booster vaccine type
-	Negative	65	Female No	No	0	Breast	Resected	Doxorubicin + cyclophosphamide	No therapy	mRNA- 1273
7	Negative	73	Female	Female Endocrine, autoimmune	-	Breast	Metastatic	Everolimus + exemestane	Everolimus + exemestane	mRNA- 1273
З	Negative	60	Male	No	ю	Colorectal	Metastatic	FOLFOX + panitumumab	FU/FA + panitumumab	BNT162b2
4	Negative	75	Female	Cardiovascular, diabetes, endocrine	7	Colorectal	Metastatic	FOLFOX + panitumumab	FU/FA + panitumumab	BNT162b2
5	Positive	65	Female	Cardiovascular	1	Colorectal	Colorectal Metastatic	FOLFOX + bevacizumab	FU/FA + bevacizumab	BNT162b2
9	Positive	53	Male	No	2	NSCLC	Metastatic	Carboplatin + pemetrexed	Docetaxel	BNT162b2
ECOG =	Eastern Cooperativ	ve Onco.	logy Group	2; FOLFOX = 5-fluorouraci	il, leucovori	n, oxaliplatin; ]	FU/FA = fluc	ECOG = Eastern Cooperative Oncology Group; FOLFOX = 5-fluorouracil, leucovorin, oxaliplatin; FU/FA = fluorouracil and leucovorin; NSCLC = non-small cell lung cancer; PS = performance	on-small cell lung cancer; PS =	= performance
status										

vaccination in this population. Furthermore, such data are consistent with another recently published report in a mixed onco-haematologic population, showing 56% seroconversion [4]. In conclusion, although a variable percentage of patients with solid tumours display immunisation after booster despite seronegativity after previous primary vaccine, there is a subpopulation who persistently fails to achieve seroconversion (roughly onethird of those who remained seronegative after primary vaccination) [1,3,4]. This finding is concerning, as boosters are the leading strategy to enhance immunisation. Further investigation is warranted in this population. In particular, pooling data into consortium efforts would allow to better characterise immune response in patients with cancer since individual analyses are underpowered to assess patient and treatment subgroups in detail. This would also support the sharing of knowledge and resources on immunological and computational analyses to better dissect this vulnerable population.

## Conflict of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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