

**Table S1.** Anti SARS-CoV-2 IgG antibody titer in relation to the population's characteristic

Profile		IgG (MFI)								
		Spike Protein			Nucleocapsid Protein			Spike-Nucleocapsid Conjugate		
		Mean	(±SD)	<i>P</i> value	Mean	(±SD)	<i>P</i> value	Mean	(±SD)	<i>P</i> value
<b>Age (year)</b>	≤40	9280.20	± 2531.39	0.276	3074.54	± 2442.92	0.151	9195.98	± 2470.27	0.213
	>40	8478.31	± 1934.92		2058.54	± 1667.44		8296.46	± 1989.42	
<b>Gender</b>	Male	9402.67	± 2486.21	0.454	3012.60	± 2769.25	0.454	9381.21	± 2607.72	0.483
	Female	9024.98	± 2468.33		2900.67	± 2087.67		8876.74	± 2289.99	
<b>Body Mass Index</b>	Underweight	9840.50	± 351.43	0.473	2394.00	± 2489.02	1.065	9435.50	± 929.85	0.697
	Normal	9601.19	± 2309.30		3404.73	± 2923.83		9750.54	± 2267.96	
	Overweight	8767.86	± 2478.42		3083.39	± 2698.46		8877.11	± 2499.68	
	Obesity 1	9044.45	± 2677.25		2229.36	± 1446.34		8766.88	± 2554.53	
	Obesity 2	9439.79	± 2512.84		3589.64	± 2208.63		8945.79	± 2421.32	
<b>Occupation</b>	Doctor	9646.29	± 2342.00	0.143	2713.09	± 1933.56	0.779	9629.68	± 2315.68	0.152
	Nurse	8762.34	± 2265.30		3104.45	± 2644.66		8674.00	± 2261.50	
	Other	9931.45	± 3539.94		2833.36	± 2252.69		9544.64	± 3302.97	
<b>Work Unit</b>	ICU	8689.95	± 2621.50	0.415	3174.50	± 2544.00	0.271	8681.20	± 2558.98	0.100
	ER	9375.12	± 2165.75		3297.00	± 1904.22		8966.64	± 2004.43	
	Ward	9793.74	± 2188.62		3539.84	± 3715.64		10155.95	± 2290.48	
	Polyclinic	9527.32	± 2612.85		2744.58	± 1710.79		9529.26	± 2277.82	
	OR	8507.95	± 2772.52		1907.55	± 1295.46		8184.15	± 2769.45	
<b>Comorbidity</b>	Yes	9288.08	± 2110.99	0.872	2555.33	± 3041.83	0.547	9206.58	± 2239.31	0.851
	No	9164.60	± 2524.01		2997.87	± 2290.98		9066.08	± 2459.48	
<b>COVID-19 History</b>	Infected	8890.23	± 2406.34	0.064	2958.07	± 2475.39	0.938	8811.18	± 2414.01	0.076
	Non Infected	9881.63	± 2523.86		2917.70	± 2157.68		9742.53	± 2361.79	
<b>Vaccination Frequency (times)</b>	2	9385.20	± 1529.99	0.116	4239.80	± 2041.59	0.245	9916.80	± 1549.20	0.113
	3	8915.76	± 2532.25		3024.25	± 2440.07		8807.94	± 2492.31	
	4	10219.21	± 2195.59		2281.84	± 2080.56		10004.26	± 2109.48	
	6-12	10819.38	± 2554.23		2625.63	± 2246.88		10627.00	± 2431.66	

<b>Duration between the last vaccination and blood sample (months)</b>	13-18	8732.67	± 2640.30		2444.33	± 1921.69		8629.38	± 2324.90	
	18-24	8921.79	± 2425.13		3038.38	± 2557.34		8913.03	± 2596.19	
	25-31	9303.85	± 2346.74		3195.73	± 2492.67		9155.40	± 2283.03	
<b>Vaccine Combination</b>	2 Inactive - 2 mRNA	11008.14	± 1927.79		2371.93	± 2300.61		10615.71	± 1968.79	
	2 Inactive - mRNA	8932.38	± 2544.29	0.010*	3000.76	± 2446.85	0.551	8817.01	± 2507.12	0.036*
	Lainnya	8599.64	± 1431.55		3291.27	± 2006.51		9013.18	± 1641.16	
<b>IgG Antibody</b>	Seropositive	9258.47	± 2346.62		2974.51	± 2371.19		9161.56	± 2299.43	
	Seronegative	1072.00	± NA	0.001	70.00	± NA	0.226	1013.00	± NA	0.001

\*Anova test

IgG: Immunoglobulin G; MFI: Mean Fluorescence Intensity; ICU: Intensive Care Unit; ER: Emergency Room; OR: Operation Room; mRNA: Messenger RNA; NA: Not Available.

**Table S2.** Anti SARS-CoV-2 IgG antibody titer in relation to vaccination status and COVID-19 history

Profil		IgG (MFI)								
		Spike Protein			Nucleocapsid Protein			Spike-Nucleocapsid Conjugate		
		Mean	(±SD)	<i>p</i>	Mean	(±SD)	<i>p</i>	Mean	(±SD)	<i>p</i>
<b>Vaccination Status</b>	Full – Infected	9174.40	± 1875.62	0.038*	1717.00	± 1132.50	0.466	9097.30	± 1893.74	0.076
	Full - non-infected	11380.11	± 2002.00		2909.44	± 2730.36		11012.00	± 1951.17	
	Not Full - Infected	8845.13	± 2489.71		3155.06	± 2577.18		8765.76	± 2496.29	
	Not Full - Non-Infected	9239.43	± 2487.90		2921.24	± 1941.29		9198.48	± 2351.47	

\*Anova test.

IgG: Immunoglobulin G; MFI: Mean Fluorescence Intensity

**Table S3.** Post hoc analysis Anti SARS-CoV-2 IgG antibody titer in relation to vaccination status and COVID-19 history

Dependent Variable			Mean Difference (I-J)	Std. Error	p value	95% Confidence Interval	
						Lower Bound	Upper Bound
Spike Protein	Fully Vaccinated, Infected	Fully Vaccinated, Non-Infected	-2205,711	1104,264	0,196	-5091,38	679,96
		Not Fully Vaccinated, Infected	329,273	818,104	0,978	-1808,60	2467,15
		Not Fully Vaccinated, Non-Infected	-65,029	923,397	1,000	-2478,06	2348,00
	Fully Vaccinated, Non-Infected	Fully Vaccinated, Infected	2205,711	1104,264	0,196	-679,96	5091,38
		Not Fully Vaccinated, Infected	2534,984	856,431	0,020*	296,95	4773,02
		Not Fully Vaccinated, Non-Infected	2140,683	957,519	0,121	-361,51	4642,88
	Not Fully Vaccinated, Infected	Fully Vaccinated, Infected	-329,273	818,104	0,978	-2467,15	1808,60
		Fully Vaccinated, Non-Infected	-2534,984	856,431	0,020*	-4773,02	-296,95
		Not Fully Vaccinated, Non-Infected	-394,302	605,588	0,915	-1976,83	1188,23
	Not Fully Vaccinated, Non- Infected	Fully Vaccinated, Infected	65,029	923,397	1,000	-2348,00	2478,06
		Fully Vaccinated, Non-Infected	-2140,683	957,519	0,121	-4642,88	361,51
		Not Fully Vaccinated, Infected	394,302	605,588	0,915	-1188,23	1976,83
Nucleocapsid Protein	Fully Vaccinated, Infected	Fully Vaccinated, Non-Infected	-1192,444	1091,166	0,695	-4043,89	1659,00
		Not Fully Vaccinated, Infected	-1438,063	808,400	0,290	-3550,58	674,45
		Not Fully Vaccinated, Non-Infected	-1204,238	912,444	0,553	-3588,64	1180,17
	Fully Vaccinated, Non-Infected	Fully Vaccinated, Infected	1192,444	1091,166	0,695	-1659,00	4043,89
		Not Fully Vaccinated, Infected	-245,619	846,272	0,991	-2457,10	1965,87
		Not Fully Vaccinated, Non-Infected	-11,794	946,160	1,000	-2484,31	2460,72
	Not Fully Vaccinated, Infected	Fully Vaccinated, Infected	1438,063	808,400	0,290	-674,45	3550,58
		Fully Vaccinated, Non-Infected	245,619	846,272	0,991	-1965,87	2457,10
		Not Fully Vaccinated, Non-Infected	233,825	598,404	0,980	-1329,93	1797,58
	Not Fully Vaccinated, Non- Infected	Fully Vaccinated, Infected	1204,238	912,444	0,553	-1180,17	3588,64
		Fully Vaccinated, Non-Infected	11,794	946,160	1,000	-2460,72	2484,31
		Not Fully Vaccinated, Infected	-233,825	598,404	0,980	-1797,58	1329,93

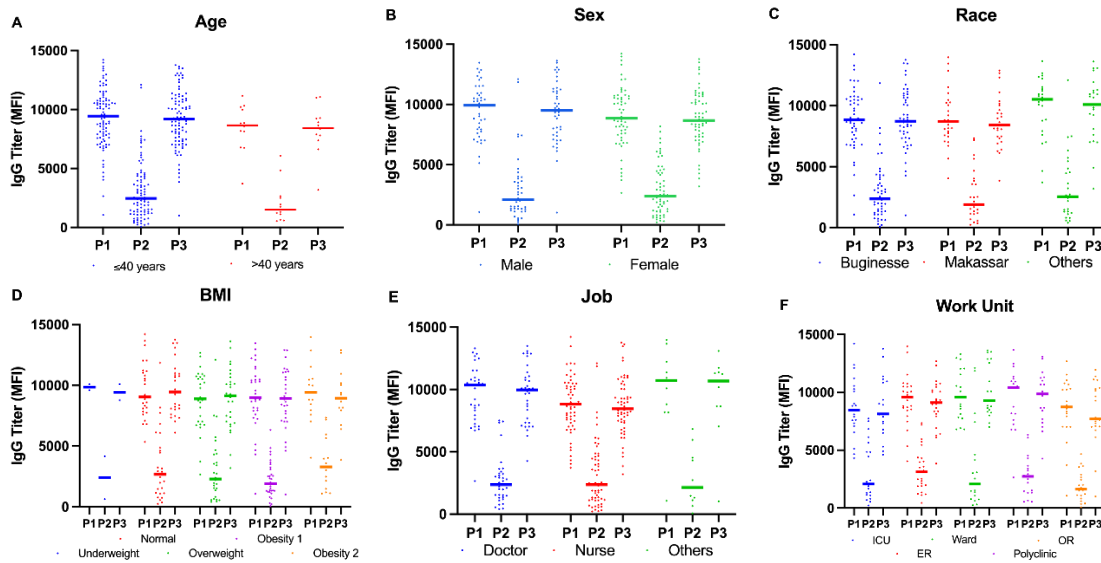
Spike- Nucleocapsid Conjugate	Fully Vaccinated, Infected	Fully Vaccinated, Non-Infected	-1914,700	1092,456	0,302	-4769,52	940,12
		Not Fully Vaccinated, Infected	331,538	809,356	0,977	-1783,48	2446,55
		Not Fully Vaccinated, Non-Infected	-101,176	913,523	1,000	-2488,40	2286,05
	Fully Vaccinated, Non-Infected	Fully Vaccinated, Infected	1914,700	1092,456	0,302	-940,12	4769,52
		Not Fully Vaccinated, Infected	2246.238	847,273	0,045*	32,14	4460,34
		Not Fully Vaccinated, Non-Infected	1813,524	947,280	0,229	-661,92	4288,96
	Not Fully Vaccinated, Infected	Fully Vaccinated, Infected	-331,538	809,356	0,977	-2446,55	1783,48
		Fully Vaccinated, Non-Infected	-2246.238	847,273	0,045*	-4460,34	-32,14
		Not Fully Vaccinated, Non-Infected	-432,714	599,112	0,888	-1998,32	1132,89
	Not Fully Vaccinated, Non- Infected	Fully Vaccinated, Infected	101,176	913,523	1,000	-2286,05	2488,40
		Fully Vaccinated, Non-Infected	-1813,524	947,280	0,229	-4288,96	661,92
		Not Fully Vaccinated, Infected	432,714	599,112	0,888	-1132,89	1998,32

\* The mean difference is significant ( $p < 0.05$ )

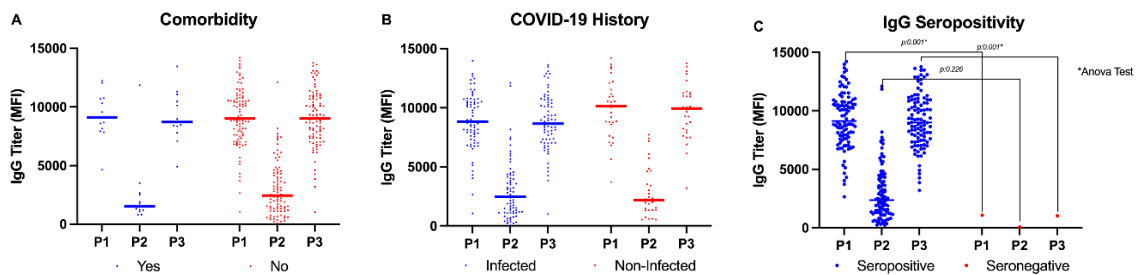
**Table S4.** Post hoc analysis Anti SARS-CoV-2 IgG antibody titer in relation to vaccination combination

Dependent Variable			Mean Difference (I-J)	Std. Error	<i>p</i> value	95% Confidence Interval	
						Lower Bound	Upper Bound
Spike Protein	2 Inactive - 2 mRNA	2 Inactive - mRNA	2075.758	691,312	0,009*	431,05	3720,47
		Others	2408.506	959,624	0,036*	125,45	4691,56
	2 Inactive - mRNA	2 Inactive - 2 mRNA	-2075.758	691,312	0,009*	-3720,47	-431,05
		Others	332,748	767,084	0,902	-1492,23	2157,73
	Others	2 Inactive - 2 mRNA	-2408.506	959,624	0,036*	-4691,56	-125,45
		2 Inactive - mRNA	-332,748	767,084	0,902	-2157,73	1492,23
Nucleocapsid	2 Inactive - 2 mRNA	2 Inactive - mRNA	-628,828	693,023	0,637	-2277,61	1019,95
		Others	-919,344	961,999	0,607	-3208,05	1369,36
	2 Inactive - mRNA	2 Inactive - 2 mRNA	628,828	693,023	0,637	-1019,95	2277,61
		Others	-290,516	768,982	0,924	-2120,01	1538,98
	Others	2 Inactive - 2 mRNA	919,344	961,999	0,607	-1369,36	3208,05
		2 Inactive - mRNA	290,516	768,982	0,924	-1538,98	2120,01
Spike- Nucleocapsid Conjugate	2 Inactive - 2 mRNA	2 Inactive - mRNA	1798.701	687,683	0,028*	162,63	3434,78
		Others	1602,532	954,586	0,218	-668,54	3873,60
	2 Inactive - mRNA	2 Inactive - 2 mRNA	-1798.701	687,683	0,028*	-3434,78	-162,63
		Others	-196,169	763,057	0,964	-2011,57	1619,23
	Others	2 Inactive - 2 mRNA	-1602,532	954,586	0,218	-3873,60	668,54
		2 Inactive - mRNA	196,169	763,057	0,964	-1619,23	2011,57

\* The mean difference is significant ( $p < 0.05$ ). mRNA: Messenger RNA.



**Figure S1.** The distribution of Anti SARS-CoV-2 IgG antibody titer in relation to the vaccinated HCWs' characteristic. Results represent the relation of age (A), gender (B), Race (C), Body Mass Index (D), Role in the hospital (E), and work unit (F) to IgG antibody titer. The y axis represents antibody levels in MFI. IgG: Immunoglobulin G; MFI: Mean Fluorescence Intensity; P1: Spike Protein; P2: Nucleoprotein; P3: Spike-Nucleocapsid Protein Conjugate; HCWs: Health Care Workers; ICU: Intensive Care Unit; ER: Emergency Room; OR: Operation Room; mRNA: Messenger RNA.



**Figure S2.** (A) The relation of comorbidity to IgG antibody titer, (B) The relation of COVID-19 history to IgG antibody titer, (C) The relation of seroprevalence to IgG antibody titer in vaccinated HCWs. The y axis represents antibody levels in MFI. *P* values were calculated using anova test.

COVID-19: Coronavirus Disease 2019; IgG: Immunoglobulin G; MFI: Mean Fluorescence Intensity; P1: Spike Protein; P2: Nucleoprotein; P3: Spike-Nucleocapsid Protein Conjugate