

Table S1. Patient characteristics				
	Negative (N=357)	Positive (N=1,088)	All Patients (N=1,445)	P value
Age (yrs)	68 (28, 85)	66 (16, 110)	66 (16, 110)	<0.001
Gender				<0.001
Male	184 (32.1%)	390 (67.9%)	574 (100.0%)	
Female	172 (19.8%)	696 (80.2%)	868 (100.0%)	
Race				0.75
Asian or Asian American	6 (30.0%)	14 (70.0%)	20 (100.0%)	
Black or African American	2 (28.6%)	5 (71.4%)	7 (100.0%)	
White or Caucasian	337 (24.5%)	1038 (75.5%)	1375 (100.0%)	
Other	7 (33.3%)	14 (66.7%)	21 (100.0%)	
Ethnicity				0.63
Hispanic or Latino	6 (20.7%)	23 (79.3%)	29 (100.0%)	
Not Hispanic or Latino	343 (24.6%)	1052 (75.4%)	1395 (100.0%)	
Cancer Diagnosis				<0.001
Acute lymphoblastic leukemia (ALL)	2 (11.8%)	15 (88.2%)	17 (100.0%)	
Acute myeloid leukemia (AML)	3 (8.8%)	31 (91.2%)	34 (100.0%)	
Blastic plasmacytoid dendritic cell neoplasm (BPDCN)	1 (100.0%)	0 (0.0%)	1 (100.0%)	
Burkitt lymphoma (BL)	0 (0.0%)	1 (100.0%)	1 (100.0%)	
Chronic lymphocytic leukemia (CLL)	233 (35.8%)	417 (64.2%)	650 (100.0%)	
Chronic myeloid leukemia (CML)	1 (2.9%)	33 (97.1%)	34 (100.0%)	
Diffuse large B cell lymphoma (DLBCL)	11 (21.2%)	41 (78.8%)	52 (100.0%)	
Follicular lymphoma (FL)	22 (22.4%)	76 (77.6%)	98 (100.0%)	
Hairy cell leukemia (HCL)	0 (0.0%)	7 (100.0%)	7 (100.0%)	
Hodgkin lymphoma (HL)	1 (1.5%)	64 (98.5%)	65 (100.0%)	
Mantle cell lymphoma (MCL)	15 (55.6%)	12 (44.4%)	27 (100.0%)	
Marginal zone lymphoma (MZL)	13 (38.2%)	21 (61.8%)	34 (100.0%)	
Myelodysplastic syndrome / myeloproliferative neoplasm	1 (2.9%)	34 (97.1%)	35 (100.0%)	
Multiple myeloma (MM)	9 (4.9%)	175 (95.1%)	184 (100.0%)	
Non-Hodgkin lymphoma no specified	10 (20.8%)	38 (79.2%)	48 (100.0%)	
Primary amyloidosis	0 (0.0%)	2 (100.0%)	2 (100.0%)	
Primary central nervous system lymphoma (PCNSL)	1 (50.0%)	1 (50.0%)	2 (100.0%)	
Primary mediastinal (thymic) large B cell lymphoma	0 (0.0%)	4 (100.0%)	4 (100.0%)	
Smoldering multiple myeloma	0 (0.0%)	29 (100.0%)	29 (100.0%)	
T cell lymphoma	2 (15.4%)	11 (84.6%)	13 (100.0%)	
Waldenstrom macroglobulinemia (WM)	25 (25.8%)	72 (74.2%)	97 (100.0%)	
COVID-19 Vaccination Type				0.084
BNT162b2 (Pfizer)	210 (26.5%)	583 (73.5%)	793 (100.0%)	
mRNA-1273 (Moderna)	147 (22.5%)	505 (77.5%)	652 (100.0%)	
Days from second vaccination to antibody testing	42 (14, 114)	41 (14, 134)	41 (14, 134)	0.40
Days from first vaccination to second	23 (14, 61)	26 (14, 59)	26 (14, 61)	0.16
Treatments within the past 2 years				
BMCA or CD138 CAR T	1 (20.0%)	4 (80.0%)	5 (100.0%)	0.81

Supplemental Table S1
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Bone marrow transplant	8 (11.0%)	65 (89.0%)	73 (100.0%)	0.005
Brukinsa (Zanubrutinib)	2 (50.0%)	2 (50.0%)	4 (100.0%)	0.24
Calquence (Acalabrutinib)	32 (57.1%)	24 (42.9%)	56 (100.0%)	<0.001
CD19 CAR T	6 (85.7%)	1 (14.3%)	7 (100.0%)	<0.001
Chemotherapy	72 (26.0%)	205 (74.0%)	277 (100.0%)	0.58
Imbruvica (Ibrutinib)	114 (51.4%)	108 (48.6%)	222 (100.0%)	<0.001
IVIG (Intravenous Immune Globulin)	32 (27.8%)	83 (72.2%)	115 (100.0%)	0.42
Loxo-305	2 (66.7%)	1 (33.3%)	3 (100.0%)	0.092
Obinutuzumab (Gazyva)	59 (81.9%)	13 (18.1%)	72 (100.0%)	<0.001
Rituximab (Rituxan)	107 (56.0%)	84 (44.0%)	191 (100.0%)	<0.001
SNS-062 (Vecabrutinib)	0 (0.0%)	1 (100.0%)	1 (100.0%)	0.57
Venetoclax	17 (60.7%)	11 (39.3%)	28 (100.0%)	<0.001
None of the above	78 (10.4%)	669 (89.6%)	747 (100.0%)	<0.001
Numeric values shown as median (min, max), categorical as count (row percent).				

Table S2. Models of the Association between Vaccine Type and Immune Response		
	Odds Ratios (95% CI)	P value
Model 1 (n = 845)		
COVID-19 Vaccination Type (mRNA-1273)	1.50 (1.12, 2.00)	0.007
Model 2 (n = 844)		
COVID-19 Vaccination Type (mRNA-1273)	1.48 (1.06, 2.06)	0.021
Cancer diagnosis (Follicular lymphoma)	1.82 (0.97, 3.61)	0.073
Cancer diagnosis (Waldenstrom macroglobulinemia)	1.42 (0.78, 2.68)	0.26
Age (yrs)	0.97 (0.95, 0.99)	0.002
Gender (Female)	1.85 (1.37, 2.49)	<0.001
Days from second vaccination to antibody testing	1.00 (0.99, 1.01)	0.62
mRNA-1273: Follicular lymphoma	0.92 (0.33, 2.71)	0.87
mRNA-1273: Waldenstrom macroglobulinemia	1.83 (0.66, 5.52)	0.26
Model 3 (n = 844)		
COVID-19 Vaccination Type (mRNA-1273)	1.73 (1.24, 2.42)	0.001
Cancer diagnosis (Follicular lymphoma)	1.93 (1.07, 3.66)	0.036
Cancer diagnosis (Waldenstrom macroglobulinemia)	2.12 (1.24, 3.75)	0.007
Age (yrs)	0.97 (0.95, 0.99)	0.004
Gender (Female)	1.65 (1.19, 2.30)	0.003
Calquence (Acalabrutinib)	0.36 (0.19, 0.66)	0.001
Chemotherapy	0.45 (0.21, 0.93)	0.033
Imbruvica (Ibrutinib)	0.36 (0.25, 0.52)	<0.001
IVIg (Intravenous immune globulin)	1.70 (0.92, 3.24)	0.097
Obinutuzumab (Gazyva)	0.08 (0.04, 0.15)	<0.001
Rituximab (Rituxan)	0.29 (0.17, 0.50)	<0.001
Venetoclax	0.97 (0.37, 2.48)	0.96

OR=odds ratio; CI=confidence interval. ORs, 95% CIs, and p-values result from logistic regression models. ORs are interpreted as the multiplicative increase in the odds of having an immune response.