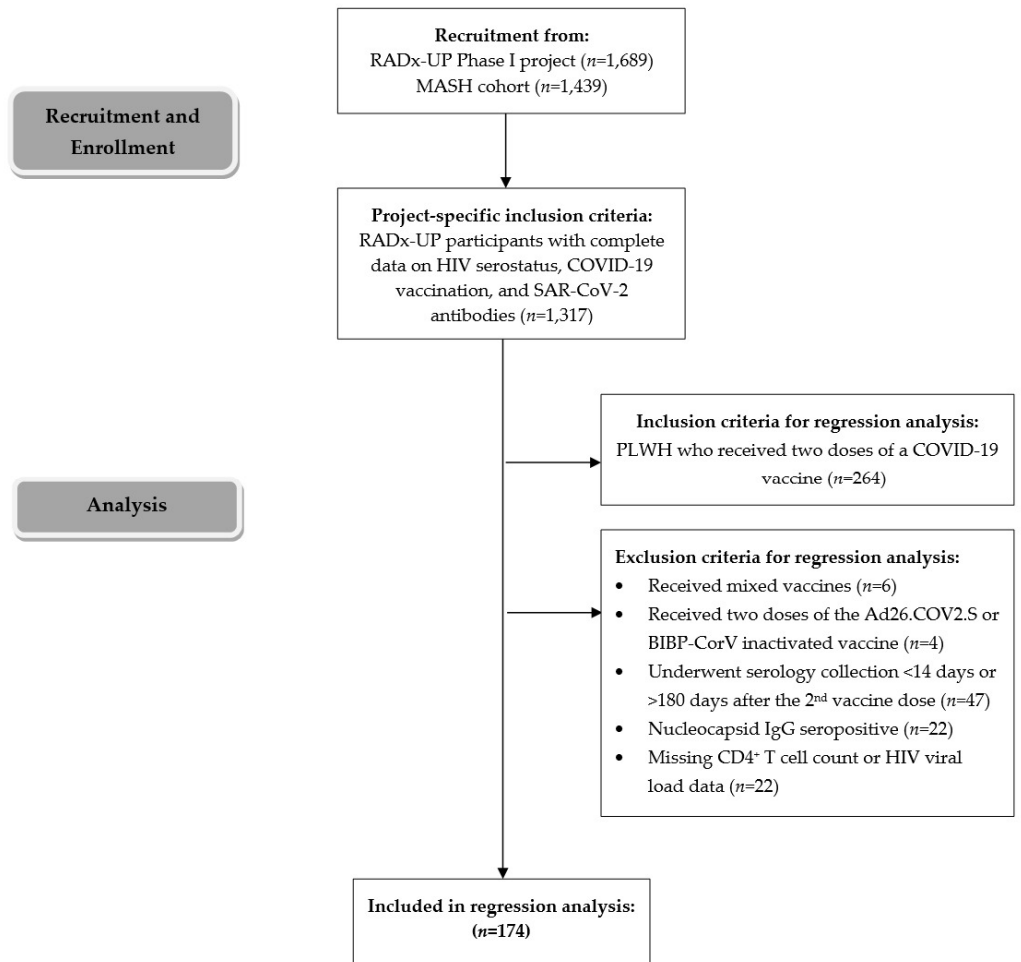




Supplementary Figure S1. Flow diagram of participant recruitment, eligibility, and final inclusion into multivariable regression analysis.

Supplementary Table S1. Characteristics of RADx-UP PLWH who received two doses of a COVID-19 vaccine included in the multivariable linear regression models for Box-Cox-transformed SARS-CoV-2 spike (trimer) total Ig titers ($n = 174$).

Variable ^a		
Sex		
		$n=174$
	Female	80 (46)
	Male	94 (54)
Age, years		
	<50	14 (8)
	≥50-<55	21 (12.1)
	≥55-<60	66 (37.9)
	≥60-<65	43 (24.7)
	≥65	30 (17.2)
Race/Ethnicity		
	White, non-Hispanic	12 (6.9)
	White, Hispanic	37 (21.3)
	Other ^b	8 (4.6)
	Black, non-Hispanic	117 (67.2)
CD4+ T, (cells/μL)		
	<200	14 (8)
	≥200-<500	53 (30.5)
	≥500	107 (61.5)
HIV viral load, (copies/mL)		
	≥200-<5,000	15 (8.6)
	≥5,000	13 (7.5)
	<200	146 (83.9)
BMI, kg/m²		
	≥27	96 (55.2)
	<27	78 (44.8)
Interval between vaccination dose 2 and serology collection, days		85.7 [56-114]
Substance use		
	Hazardous drinking ^c	30 (17.2)
	Marijuana	45 (25.9)
	Cocaine	16 (9.2)
	Other drugs ^d	2 (1.1)
	Cigarette smoking	59 (33.9)
	Substance use disorder	16 (9.2)
Comorbidities		
	Hypertension	96 (55.2)
	Diabetes	45 (25.9)
	Autoimmune disease	11 (6.3)
	Obesity	66 (37.9)
	Chronic kidney disease	15 (8.6)
	≥Comorbidity ^e	134 (77)

a. Data are presented as count (percent, %) and median (interquartile range) for continuous variables.

b. Includes Black Hispanic, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, mixed-race, and some other race not captured by response options.

- c. Based on the National Institute of Alcohol Abuse and Alcoholism guidelines.
- d. Use of heroin, fentanyl, methamphetamine, amphetamine, hallucinogens, or ecstasy in the past 12 months.
- e. Participants reporting at least one of the following comorbidities: hypertension, diabetes, autoimmune disease, obesity, and/or chronic kidney disease.

Abbreviations: BMI, body mass index; PLWH, people living with HIV; RADx-UP, Rapid Acceleration of Diagnostics-Underserved Populations

Supplementary Table S2. Evaluation of MAR assumption: Comparing datasets of PLWH with two doses of a COVID-19 vaccine ($n = 264$) to PLWH with two doses of a COVID-19 vaccine included in the final multivariable regression model ($n = 174$).

Variable	Adjusted model (<i>n</i> =174)			Adjusted model (<i>n</i> =264)			
		<i>β</i>	<i>t</i>	<i>p</i>	<i>β</i>	<i>t</i>	<i>p</i>
Sex							
	Female	-0.072	-1.162	0.247	-0.015	-0.253	0.8003
	Male		Reference			Reference	
Age, years							
	<50	-0.044	-0.351	0.726	-0.040	-0.446	0.656
	≥50-<55	-0.083	-0.775	0.440	-0.055	-0.068	0.946
	≥55-<60	-0.124	-1.422	0.157	0.073	0.768	0.443
	≥60-<65	-0.026	-0.275	0.783	0.0375	0.347	0.729
	≥65		Reference			Reference	
Race/Ethnicity							
	White, non-Hispanic	-0.123	-1.041	0.300	-0.116	-0.940	0.349
	White, Hispanic	0.064	0.877	0.382	0.102	1.551	0.123
	Other ^a	-0.163	-1.186	0.238	0.147	1.252	0.212
	Black, non-Hispanic		Reference			Reference	
CD4+ T, (cells/μL)							
	<200	-0.279	-2.394	0.018	-0.286	-2.559	0.011
	≥200-<500	0.004	0.053	0.958	-0.012	-0.198	0.843
	≥500		Reference			Reference	
HIV viral load, (copies/mL)							
	≥200-<5,000	-0.35	-3.1	0.002	-0.210	-1.917	0.056
	≥5,000	-0.009	-0.079	0.937	-0.020	-0.173	0.863
	<200		Reference			Reference	
BMI, kg/m ²							
	≥27	0.151	1.907	0.058	0.014	0.207	0.836
	<27		Reference			Reference	
Interval between vaccination dose 2 and serology collection, days		-0.003	-4.228	<0.001	-0.001	-2.006	0.0462
Substance use							
	Hazardous drinking ^b	0.060	0.816	0.416	0.018	0.240	0.811
	Marijuana	-0.023	-0.321	0.215	-0.069	-0.979	0.329
	Cocaine	-0.132	-1.245	0.544	-0.086	-0.827	0.409
	Other drugs ^c	-0.166	-0.609	0.469	-0.194	-0.798	0.426
	Cigarette smoking	0.046	0.726	0.397	-0.004	-0.067	0.947
	Substance use disorder	-0.09	-0.85	0.400	-0.118	-1.204	0.230
Comorbidities							
	Hypertension	-0.121	-1.906	0.059	-0.036	-0.608	0.544

Diabetes	0.129	1.937	0.055	0.098	1.520	0.130
Autoimmune disease	0.013	0.11	0.912	0.036	0.333	0.740
Obesity	0.011	0.13	0.896	0.100	1.494	0.137
Chronic kidney disease	0.029	0.279	0.781	0.028	0.281	0.779
≥Comorbidity ^d	-0.06	-0.819	0.414	0.016	0.235	0.814

- a. Includes Black Hispanic, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, mixed-race, and some other race not captured by response options.
- b. Based on the National Institute of Alcohol Abuse and Alcoholism guidelines.
- c. Use of heroin, fentanyl, methamphetamine, amphetamine, hallucinogens, or ecstasy in the past 12 months.
- d. Participants reporting at least one of the following comorbidities: hypertension, diabetes, autoimmune disease, obesity, and/or chronic kidney disease.

Abbreviations: BMI, body mass index; MAR, missing at random; PLWH, people living with HIV