**Suplementary Figure S1.** Anti-S protein antibodies titers by rheumatic disease groups before and after a third dose of mRNA-based SARS-CoV-2 vaccine. The circle-shaped dots show the levels of anti-S protein antibodies of the patients' baseline and follow-up samples. The diamond-shaped points and the adjacent segments display the adjusted group means of the titer valuues and their corresponding 95% confidence intervals, respectively. Dot colors indicate the patients' treatment regimen. Adjusted means were derived from a mixed-effects linear model where sex, age, rheumatic condition, treatment type, use of glucocorticoids, type of vaccine, sample type (pre- or post-3rd dose) and time from previous dose were included as fixed effects, as well as the interaction between: sex and sample type; treatment and sample type; rheumatic condition and sample type; use of glucocorticoids and sample type; time from 2nd and third vaccine dose and sample type; glucocorticoids use and treatment regimen; and glucorticoids use and rheumatic condition. Individual effects were included as random effects in this model. The y-axis is in log2-scale, while the value labels are displayed in the original scale of the titer values (BAU/ml), The horizontal dotted line indicates a value of 260 BAU/ml, which is typically used as a threshold to define a positive response to the vaccine. **SLE**: Systemic Lupus Erythematosus; **RA:** Rheumatoid Arthritis; **B27-AS:** HLA-B27 positive Ankylosing Spondylitis; **PSA:** Psoriatic Arthritis; **GCA:** Giant Cell Arteritis; **GCs:** Glucocorticoids; **JAKi:** JAK inhibitors.
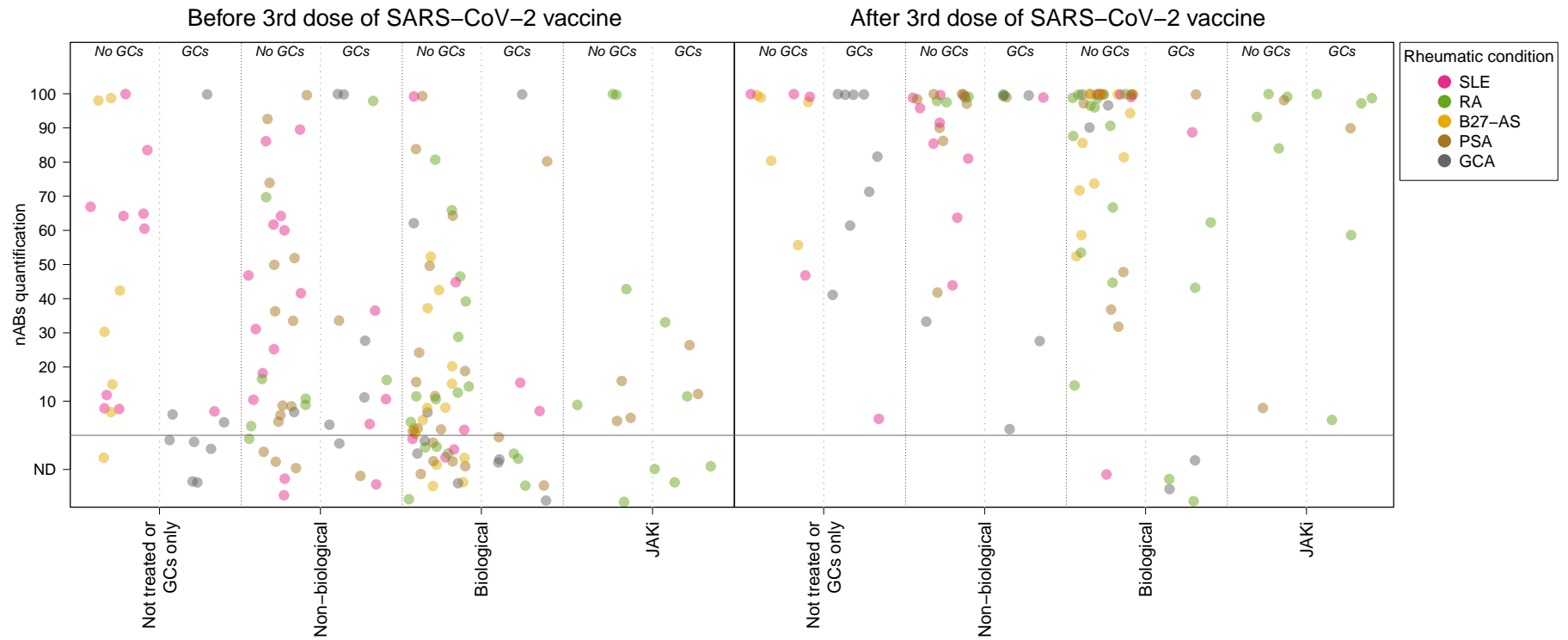
**Suplementary Figure S2.** Quantification of neutralizing antibodies for **B.1.1.7** (Alpha) variant of SARS-CoV-2 by treatment regimen before and after a third dose of mRNA-based SARS-CoV-2 vaccine. The dots show the quantitative estimations of neutralizing antibodies abundance of the patients' baseline and follow-up samples. Dot colors indicate the patients' rheumatic condition. Horizontal dotted lines display the threshold for no detection of antibody (**ND**) and positivity. **SLE**: Systemic Lupus Erythematosus; **RA:** Rheumatoid Arthritis; **B27-AS:** HLA-B27 positive Ankylosing Spondylitis; **PSA:** Psoriatic Arthritis; **GCA:** Giant Cell Arteritis; **GCs:** Glucocorticoids; **JAKi:** JAK inhibitors; **nABs:** neutralizing antibodies.
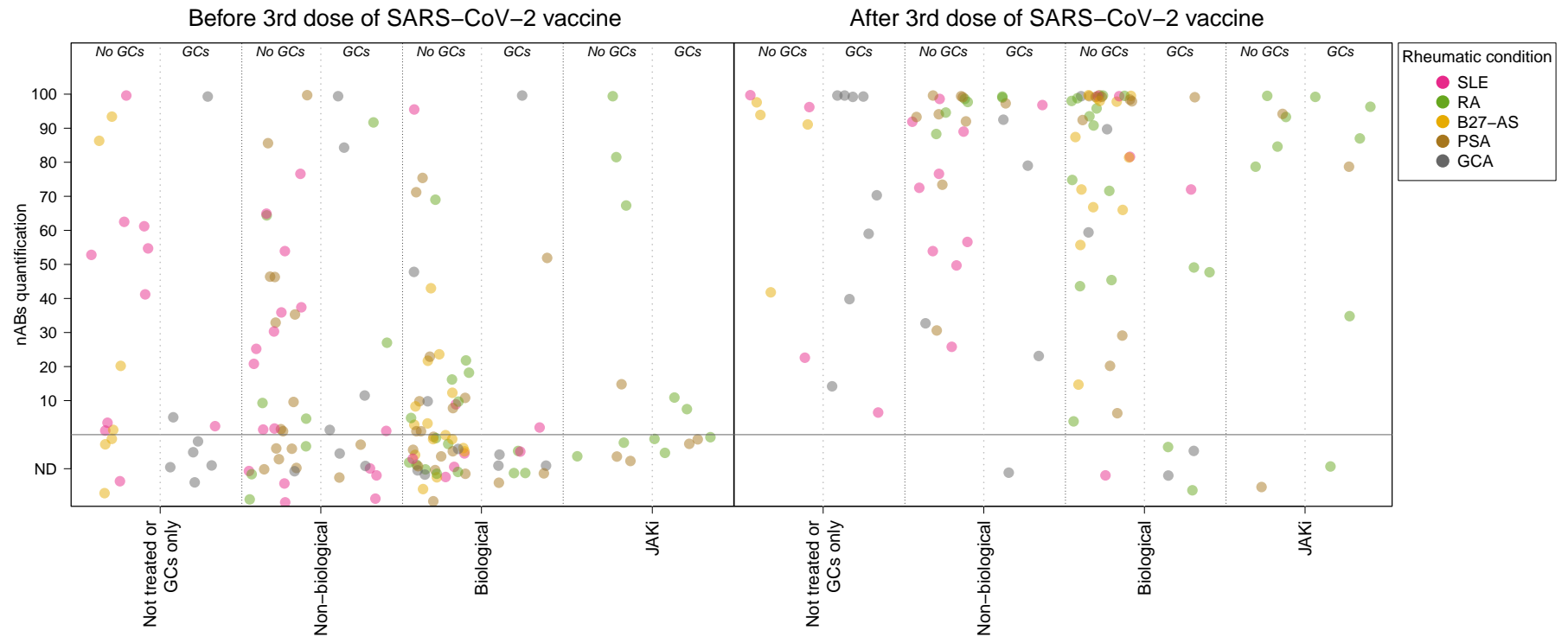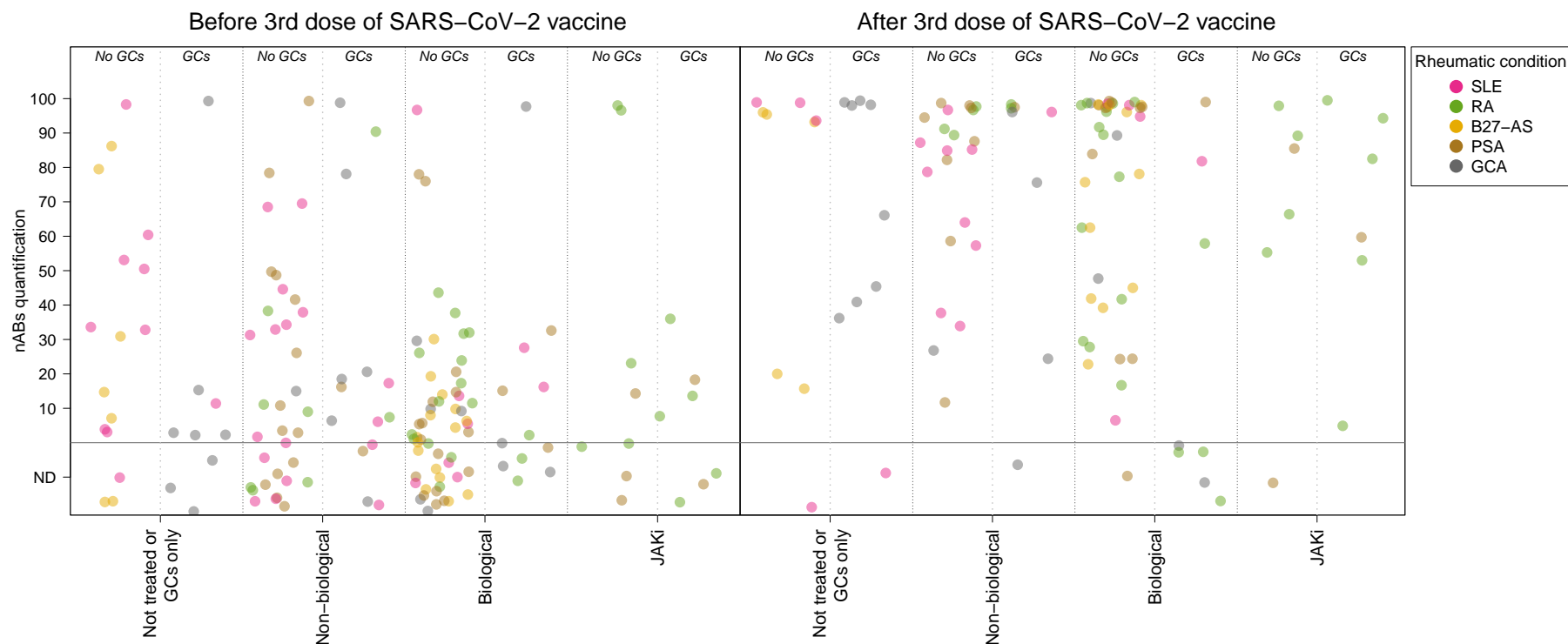
**Suplementary Figure S3.** Quantification of neutralizing antibodies for **B.1.351** (Beta) variant of SARS-CoV-2 by treatment regimen before and after a third dose of mRNA-based SARS-CoV-2 vaccine. The dots show the quantitative estimations of neutralizing antibodies abundance of the patients' baseline and follow-up samples. Dot colors indicate the patients' rheumatic condition. Horizontal dotted lines display the threshold for no detection of antibody (**ND**) and positivity. **SLE**: Systemic Lupus Erythematosus; **RA:** Rheumatoid Arthritis; **B27-AS:** HLA-B27 positive Ankylosing Spondylitis; **PSA:** Psoriatic Arthritis; **GCA:** Giant Cell Arteritis; **GCs:** Glucocorticoids; **JAKi:** JAK inhibitors; **nABs:** neutralizing antibodies.
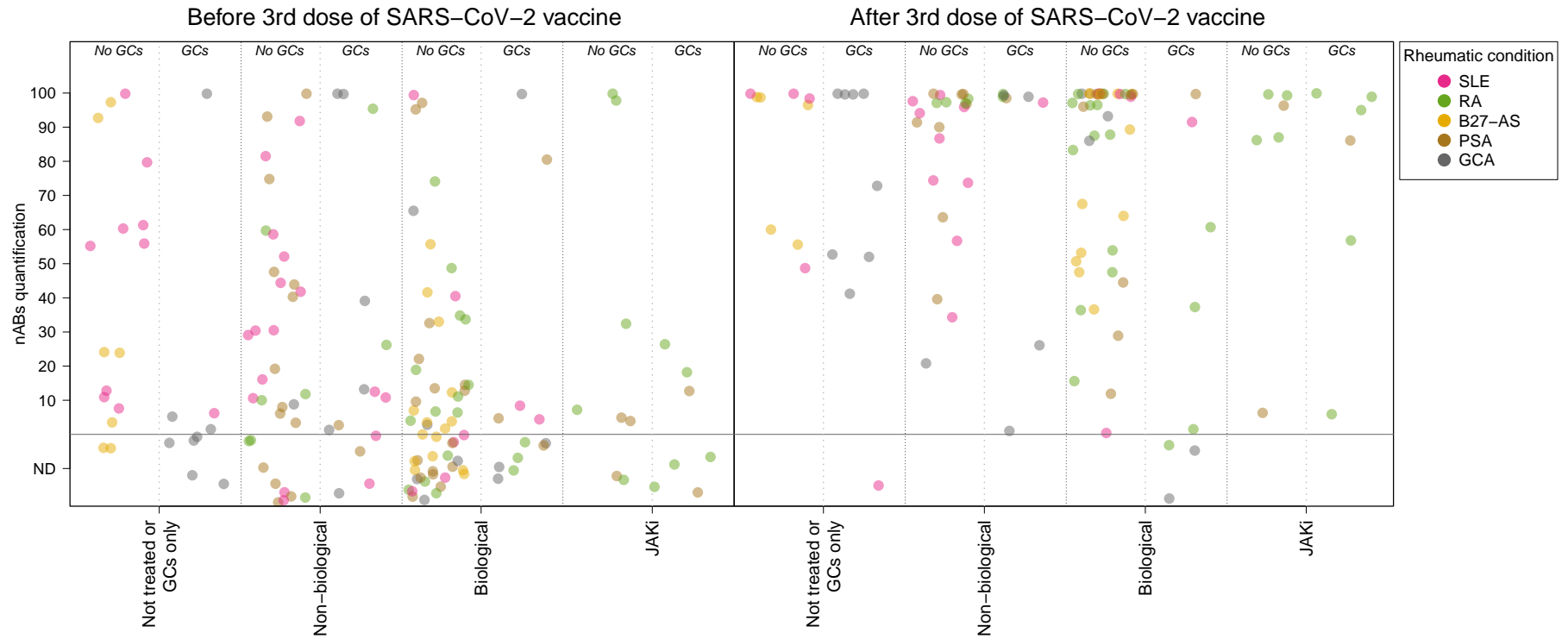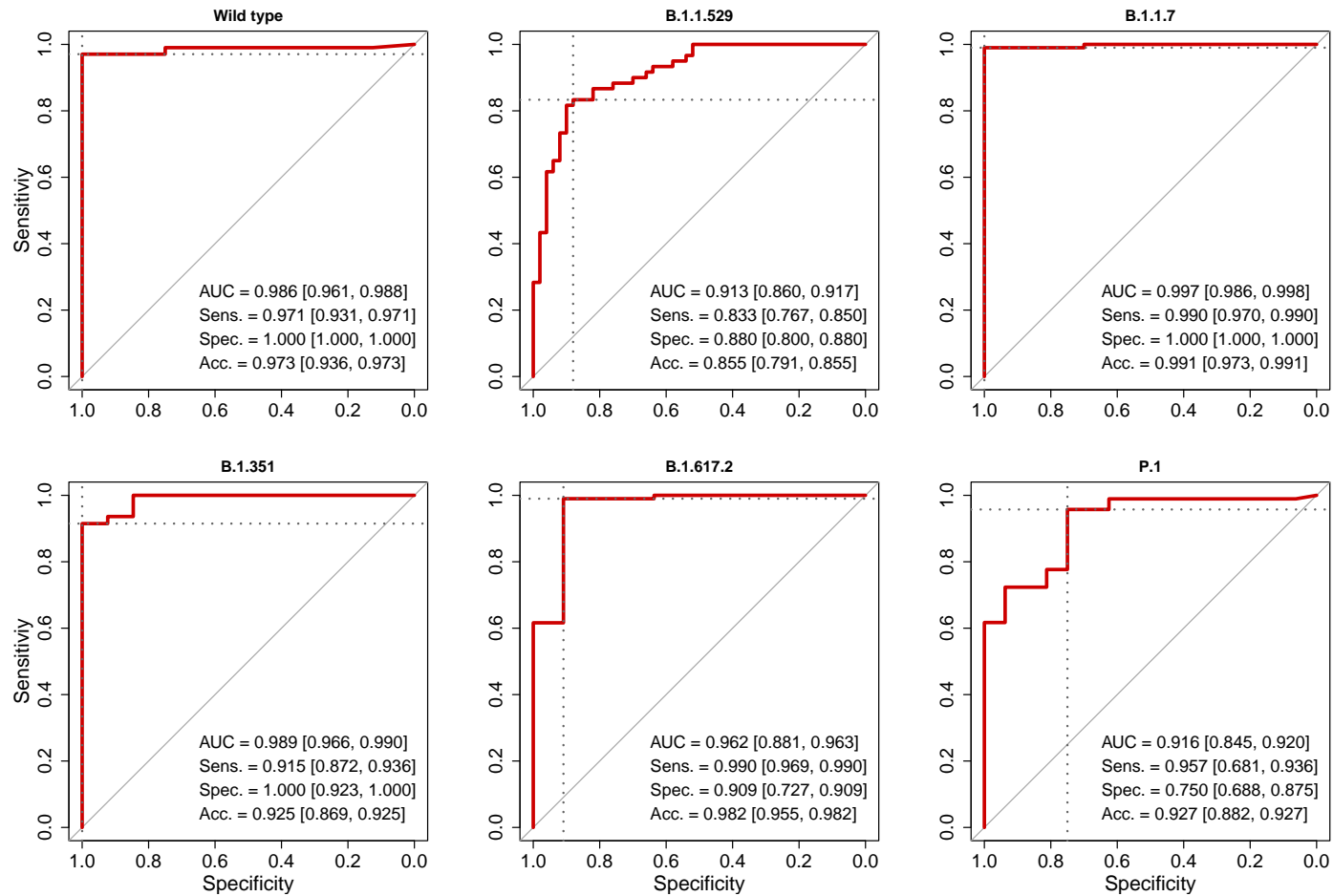
**Suplementary Figure S4.** Quantification of neutralizing antibodies for **B.1.617.2** (Delta) variant of SARS-CoV-2 by treatment regimen before and after a third dose of mRNA-based SARS-CoV-2 vaccine. The dots show the quantitative estimations of neutralizing antibodies abundance of the patients' baseline and follow-up samples. Dot colors indicate the patients' rheumatic condition. Horizontal dotted lines display the threshold for no detection of antibody (**ND**) and positivity. **SLE**: Systemic Lupus Erythematosus; **RA:** Rheumatoid Arthritis; **B27-AS:** HLA-B27 positive Ankylosing Spondylitis; **PSA:** Psoriatic Arthritis; **GCA:** Giant Cell Arteritis; **GCs:** Glucocorticoids; **JAKi:** JAK inhibitors; **nABs:** neutralizing antibodies.

**Supplementary Figure S4.** Quantification of neutralizing antibodies for **P.1** (Gamma) variant of SARS-CoV-2 by treatment regimen before and after a third dose of mRNA-based SARS-CoV-2 vaccine. The dots show the quantitative estimations of neutralizing antibodies abundance of the patients' baseline and follow-up samples. Dot colors indicate the patients' rheumatic condition. Horizontal dotted lines display the threshold for no detection of antibody (**ND**) and positivity. **SLE**: Systemic Lupus Erythematosus; **RA:** Rheumatoid Arthritis; **B27-AS:** HLA-B27 positive Ankylosing Spondylitis; **PSA:** Psoriatic Arthritis; **GCA:** Giant Cell Arteritis; **GCs:** Glucocorticoids; **JAKi:** JAK inhibitors; **nABs:** neutralizing antibodies.
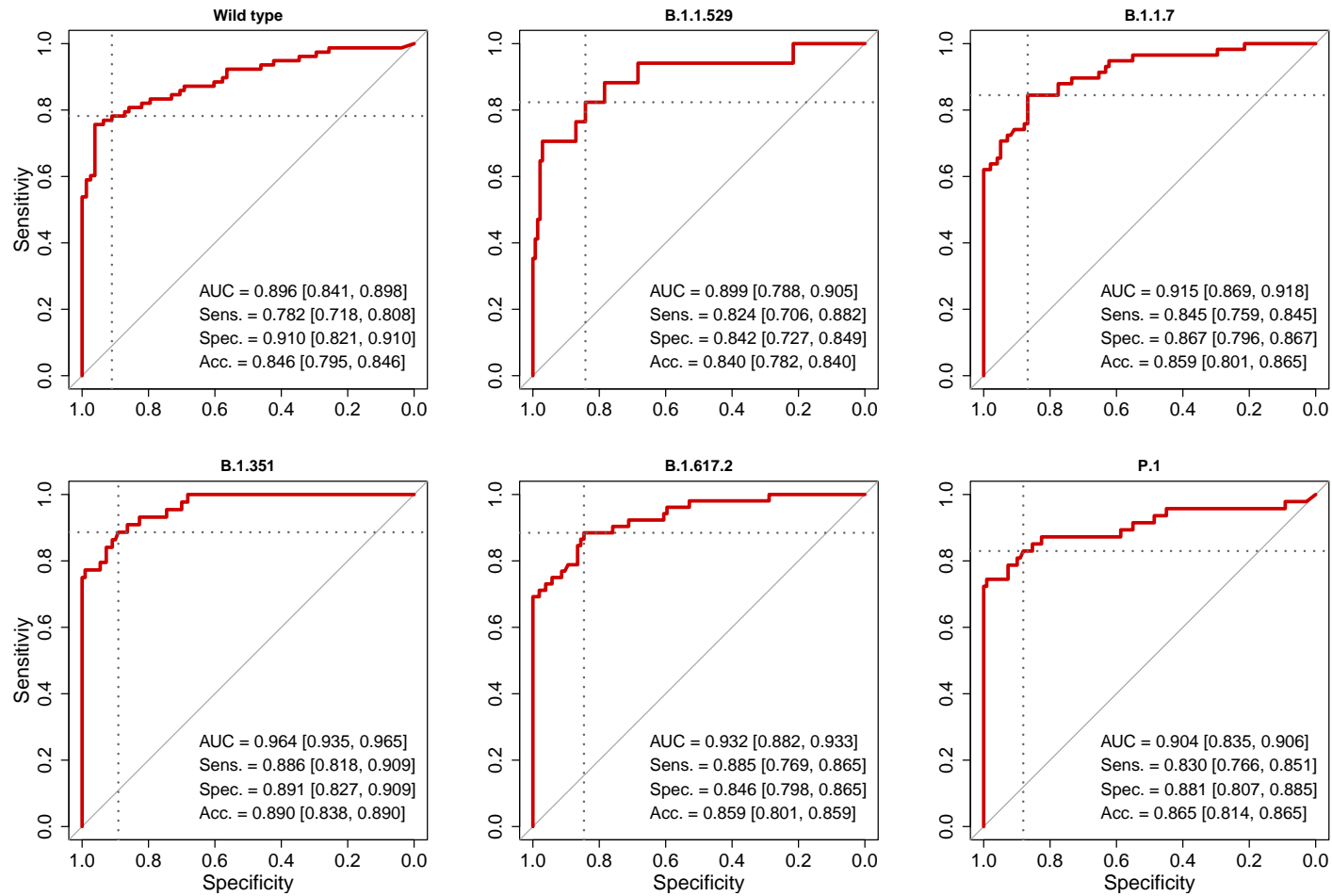
**Suplementary Figure S5.** Concordance of anti-S protein and neutralizing antibodies in pre-third dose samples. Receiver Operating Characteristics (ROC) and their corresponding Area Under the Curve (**AUC**) assessing the ability of anti-S protein antibody titers to predict neutralizing antibody positivity. The legends show the values of AUC, sensitivity (**Sens.**), Specificity (**Spec.**) and overall acuraccy in predicting the variant positivity as well as their corresponding bootstrap 95% confidence intervals. Total accuracy, sensitivity, and specificity are displayed for the optimal threshold, defined as the ROC point closest to the top-left part of the plot (perfect sensitivity and specificity). **AUC:** Area Under the Curve; **Sens.:** sensitivity; **Spec.:** specificity; A**cc.:** accuracy.

**Suplementary Figure S6.** Concordance of anti-S protein and neutralizing antibodies in post-third dose samples. Receiver Operating Characteristics (ROC) and their corresponding Area Under the Curve (**AUC**) assessing the ability of anti-S protein antibody titers to predict neutralizing antibody positivity. The legends show the values of AUC, sensitivity (**Sens.**), Specificity (**Spec.**) and overall acuraccy in predicting the variant positivity as well as their corresponding bootstrap 95% confidence intervals. Total accuracy, sensitivity, and specificity are displayed for the optimal threshold, defined as the ROC point closest to the top-left part of the plot (perfect sensitivity and specificity). **AUC:** Area Under the Curve; **Sens.:** sensitivity; **Spec.:** specificity; A**cc.:** accuracy.