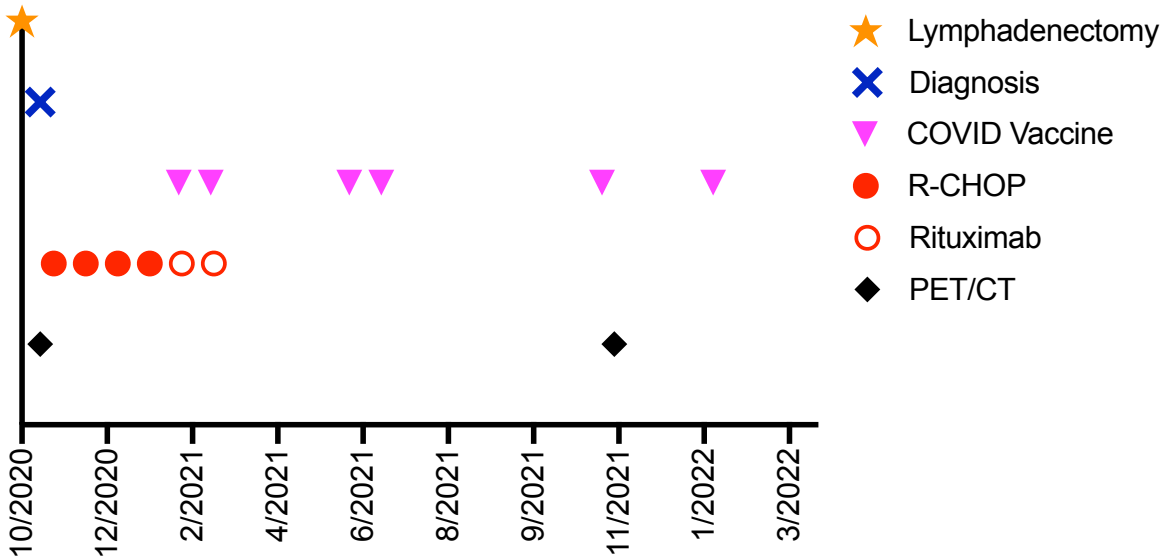
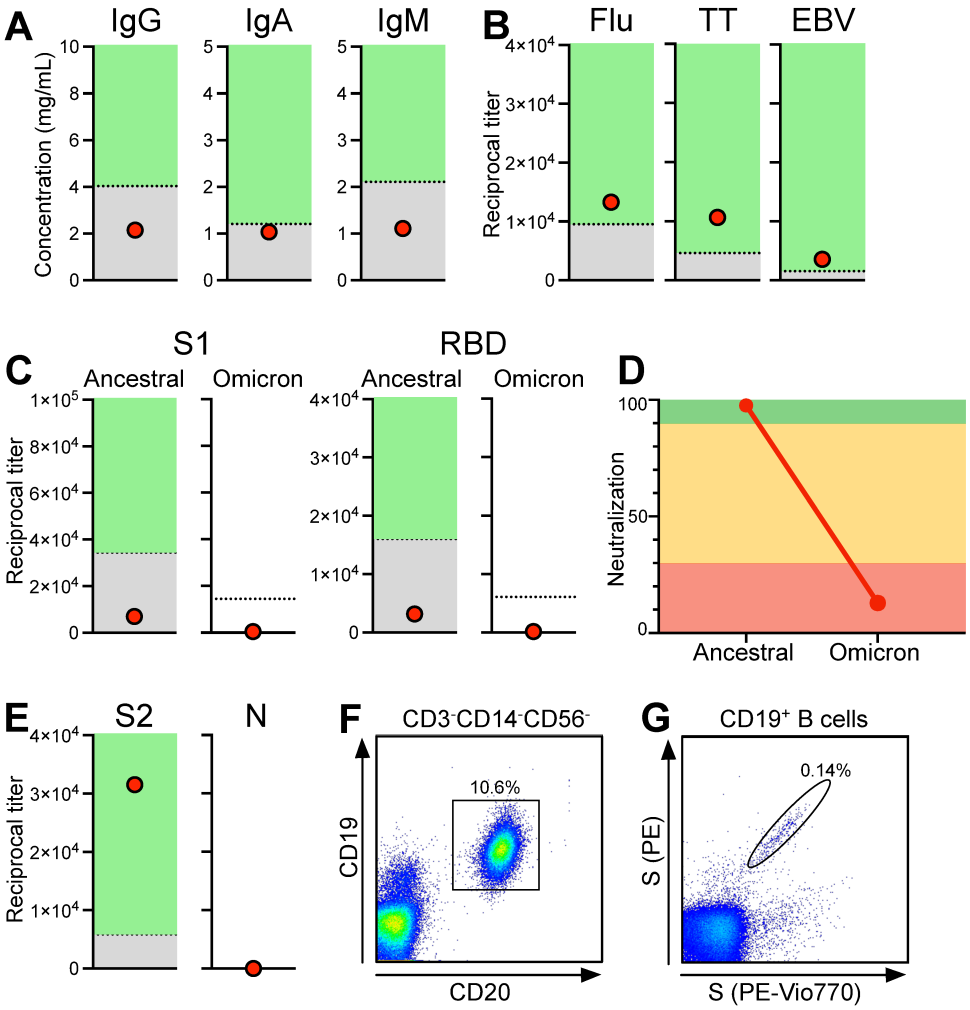
Supplemental Figure 1



Supplemental Figure 1: Time course of clinical events and treatments

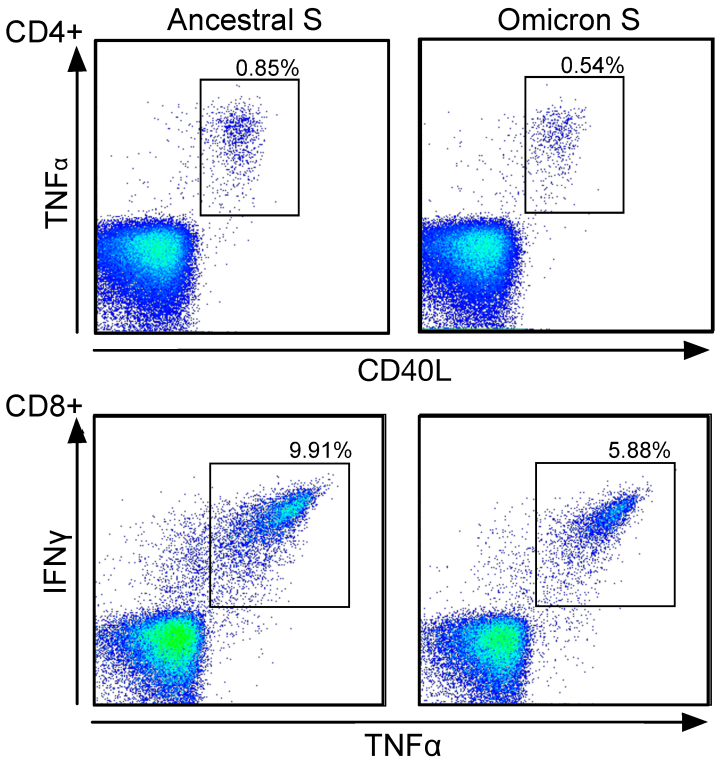
Supplemental Figure 2



Supplemental Figure 2: B cell responses in a patient with B cell lymphoma after multiple rounds of a COVID-19 mRNA vaccine

(A) Absolute levels of IgG, IgA, and IgM antibodies in our patient (red dot) were measured after 5 doses of the COVID-19 mRNA vaccine using a commercially available ELISA. Concentrations are shown in mg/mL and in relation to those of 7 healthy controls at 4 weeks after the second dose of a COVID-19 mRNA vaccine. **(B)** Titers of IgG antibodies against full-length recombinant Influenza A nucleoprotein (Flu), tetanus toxoid (TT), and Epstein-Barr virus (EBV) were measured in an ELISA. **(C)** IgG antibody titers against SARS-CoV-2 proteins S1 and RBD and their Omicron variants. **(D)** Neutralizing activity in the peripheral blood of our B cell lymphoma patient. Green, orange, and red areas indicate different degrees of inhibition (green: >90%, orange: 30-89%, red: <30%). Neutralizing activity is shown for both the original "ancestral" SARS-CoV-2 RBD protein (left) and for its Omicron variant (right). **(E)** The patient's IgG antibody titers against SARS-CoV-2 proteins S2 and N. **(F)** Flow cytometric analysis of B cell subpopulations in the peripheral blood of our B cell lymphoma patient after 5 doses of the vaccine. Dot plots show $CD19^+/CD20^+$ B cells after gating on $CD3^-/CD56^-/CD14^-$ lymphocytes. **(G)** Anti-S antibody-secreting B cells in the B cell lymphoma patient.

Supplemental Figure 3



Supplemental Figure 3: Recognition of ancestral vs. Omicron SARS-CoV-2 S protein by vaccine-induced T cells

The dot plots on the left show our patient's vaccine-induced antiviral $CD4^+$ (upper panel) and $CD8^+$ T cells (lower panel) recognizing peptide pools covering the complete sequence of ancestral vs. Omicron SARS-CoV-2 S protein. Numbers indicate percentages of S protein-specific T cells out of all $CD4^+$ and $CD8^+$ T cells, respectively.