

Supporting Information

**Title: A rational design of a multi-epitope vaccine against SARS-CoV-2
which accounts for the glycan shield of the spike glycoprotein**

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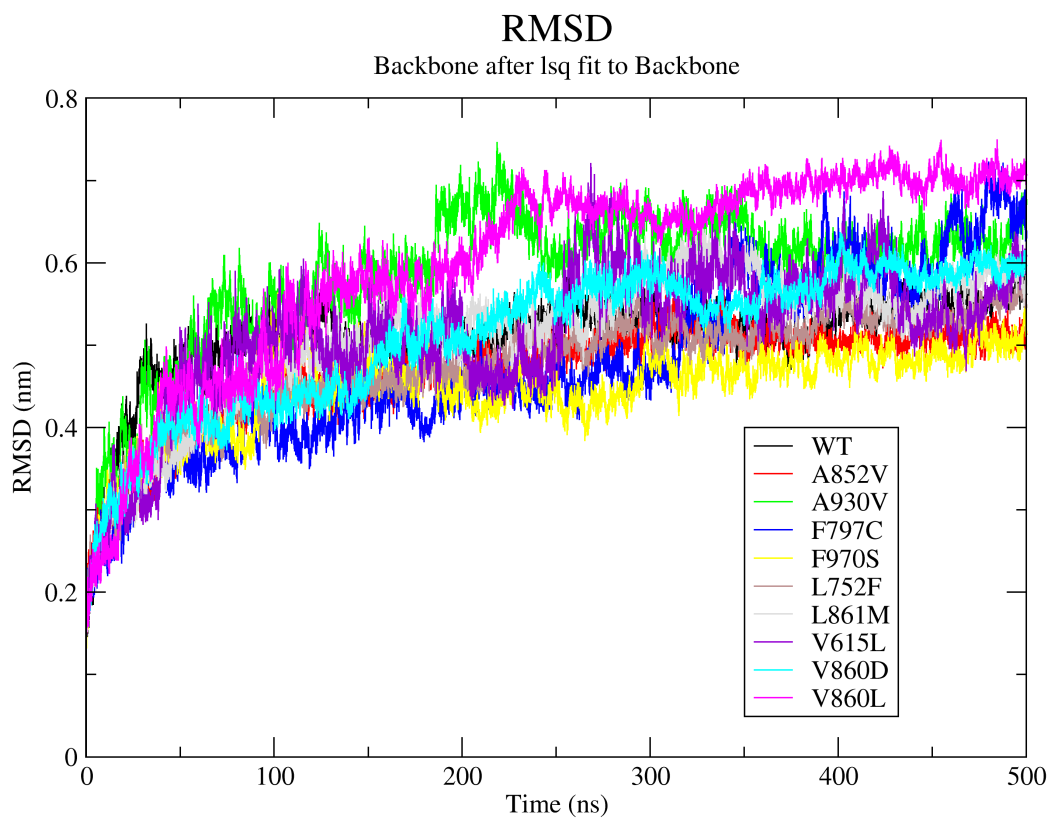
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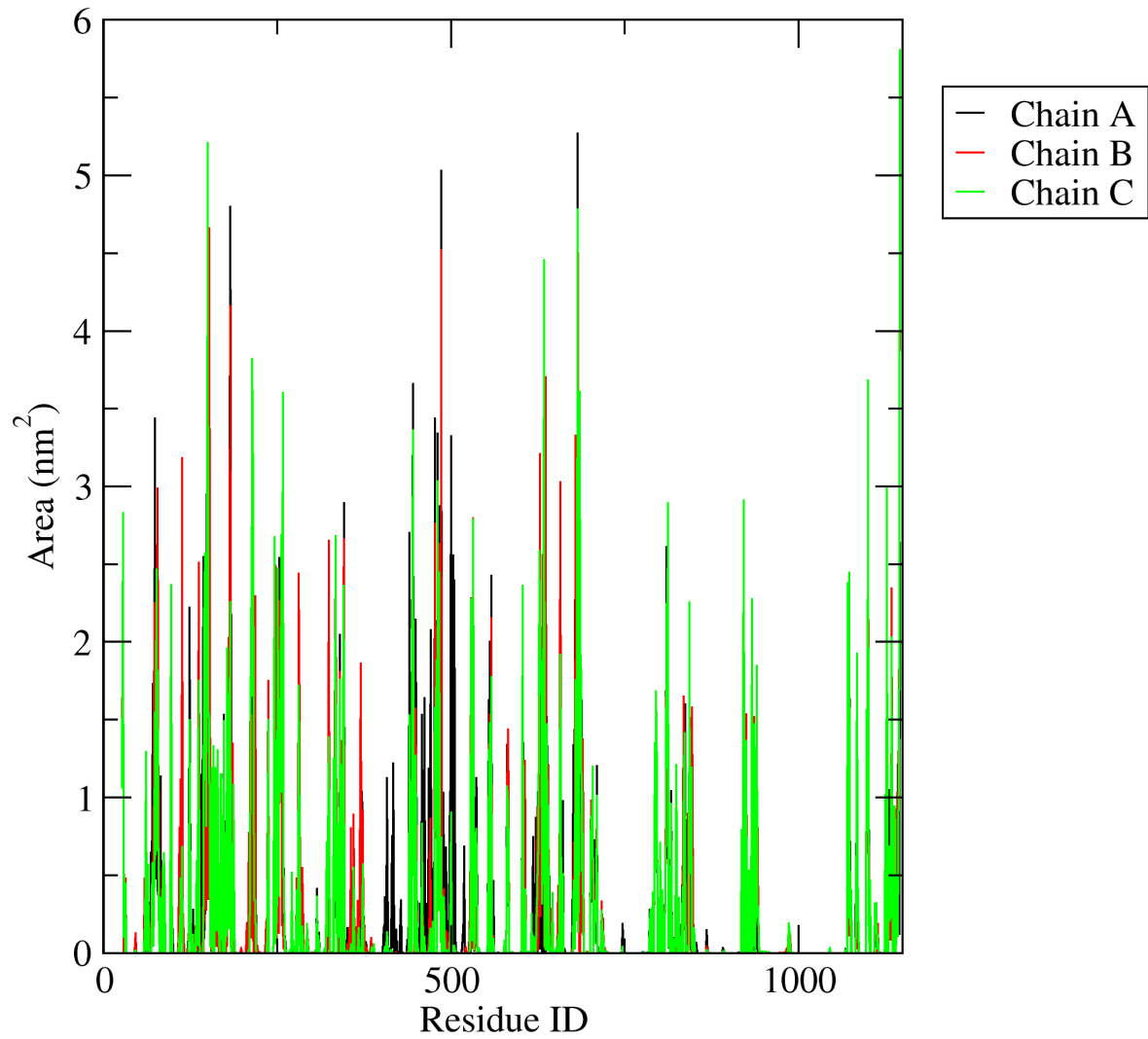
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**Supporting information includes 5 Supplementary Data (excel files) and 14
Supplementary figures (pdf files).**



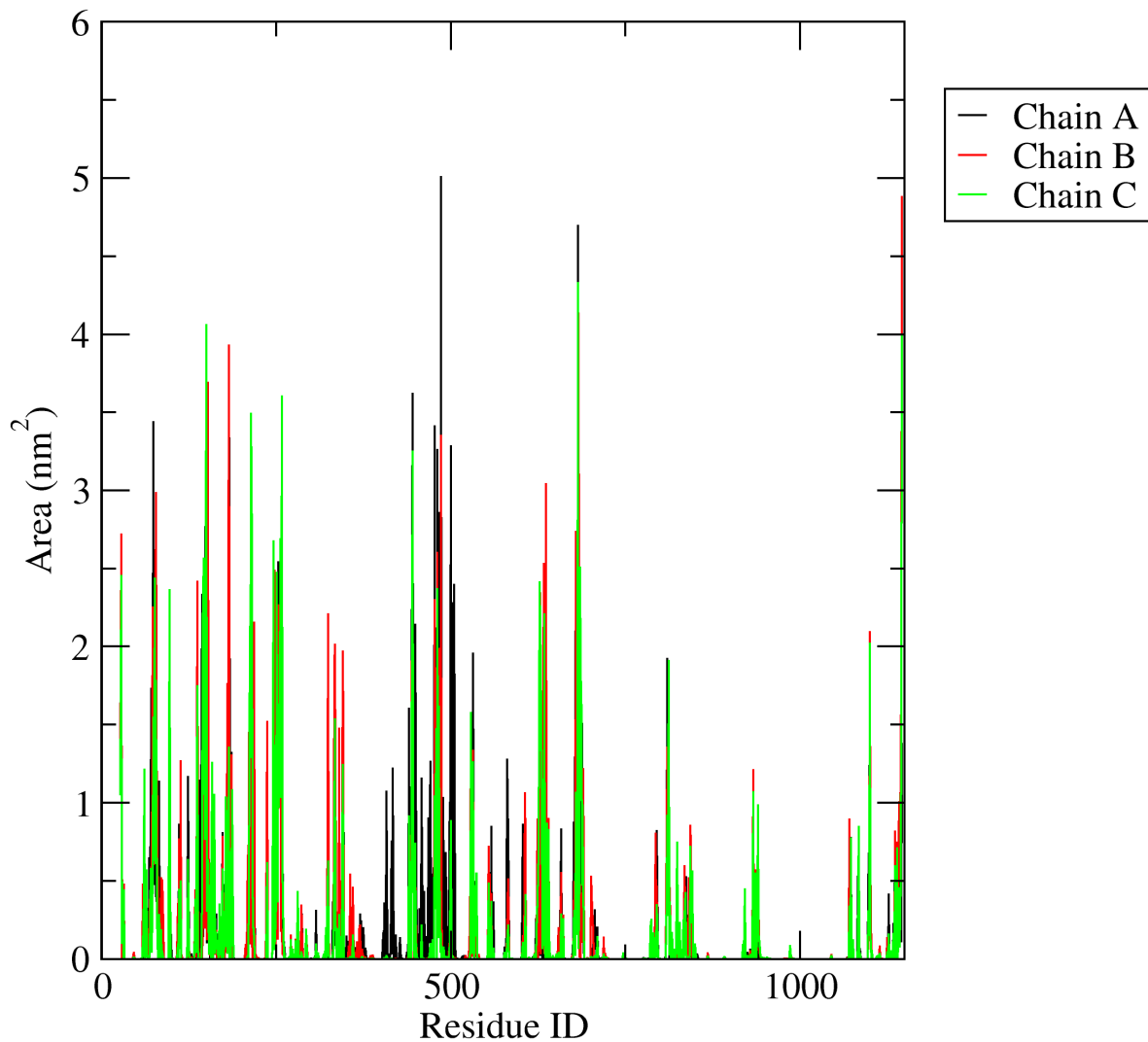
Supplementary Figure 1: Root-mean squared deviation plot over 500 nanoseconds of molecular dynamics simulation for all systems assessed for B-cell epitopes.

Area per residue over the trajectory



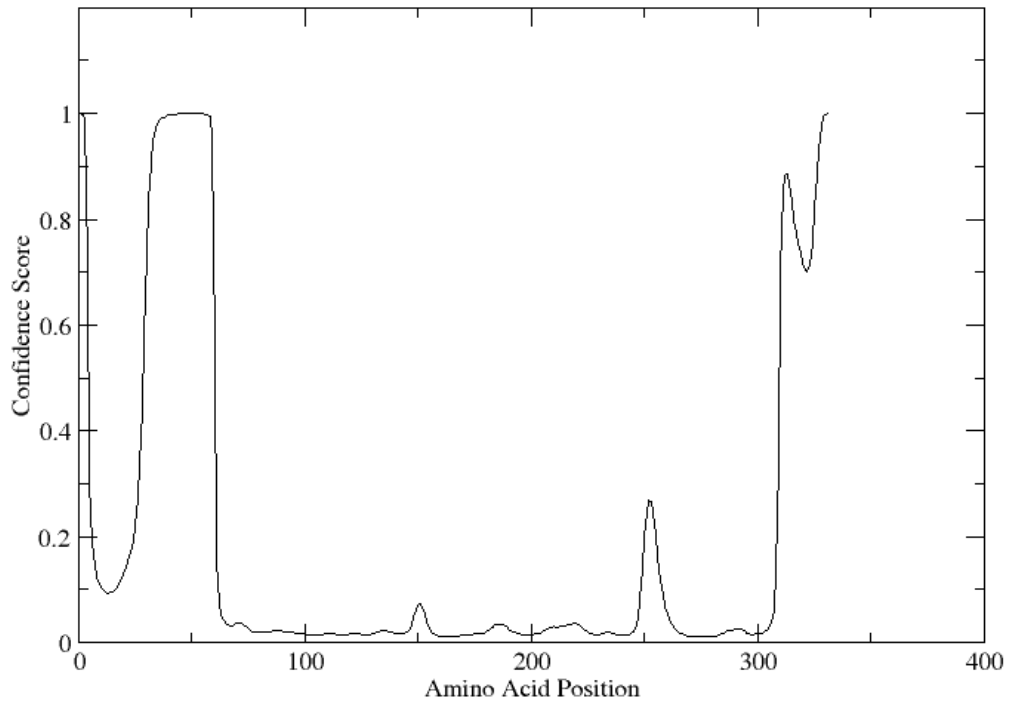
Supplementary Figure 2: Antibody-accessible surface area for the spike glycoprotein when the glycosylation is removed.

Area per residue over the trajectory

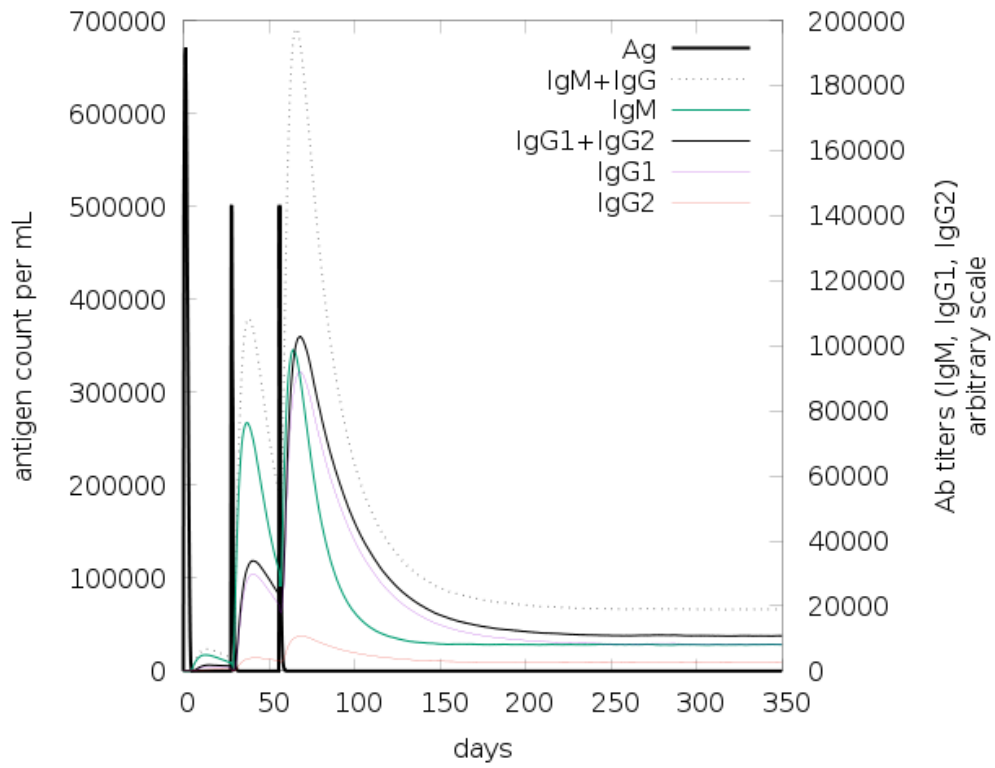


Supplementary Figure 3: Antibody-accessible surface area for the spike glycoprotein when the glycosylation is taken into account. Surface area for the glycans is not included for clarity.

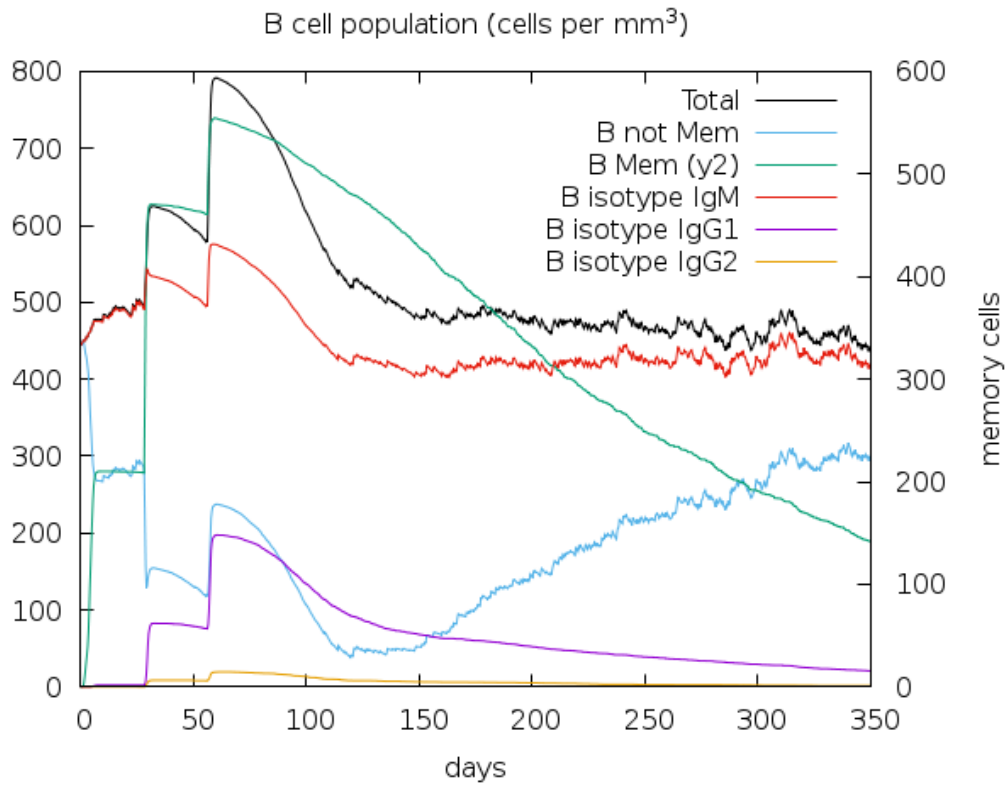
Intrinsic Disorder Profile



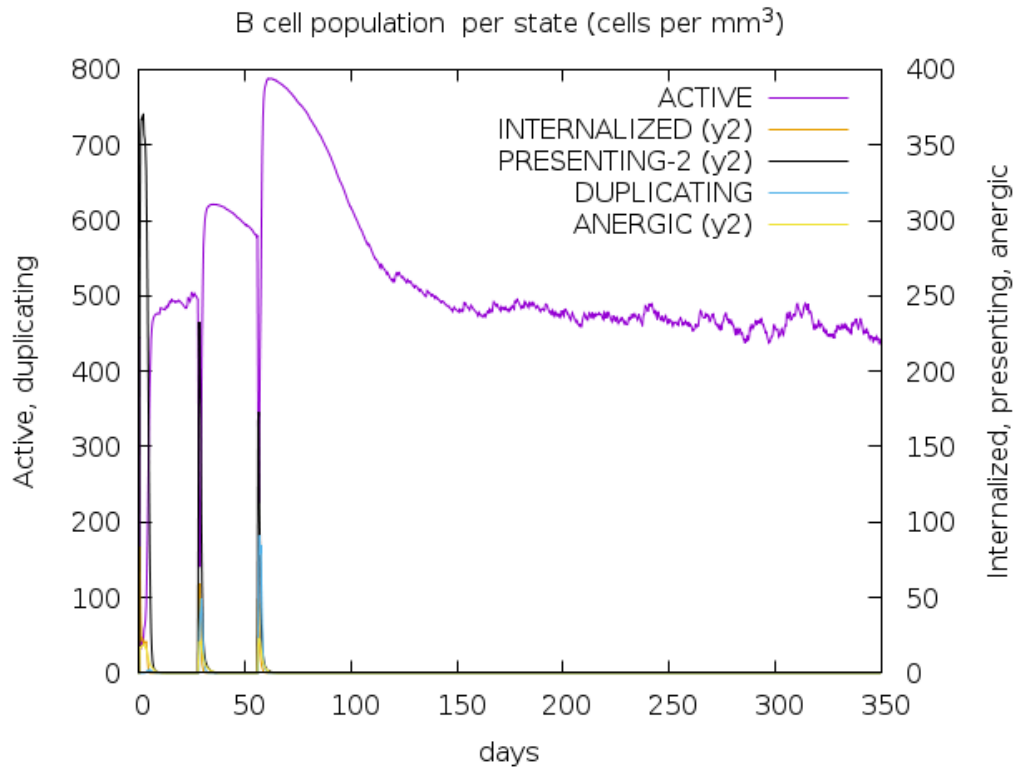
Supplementary Figure 5: Predicted disordered residue profile. 50 of the 331 residues (17%) are predicted to be disordered by RaptorX Property.



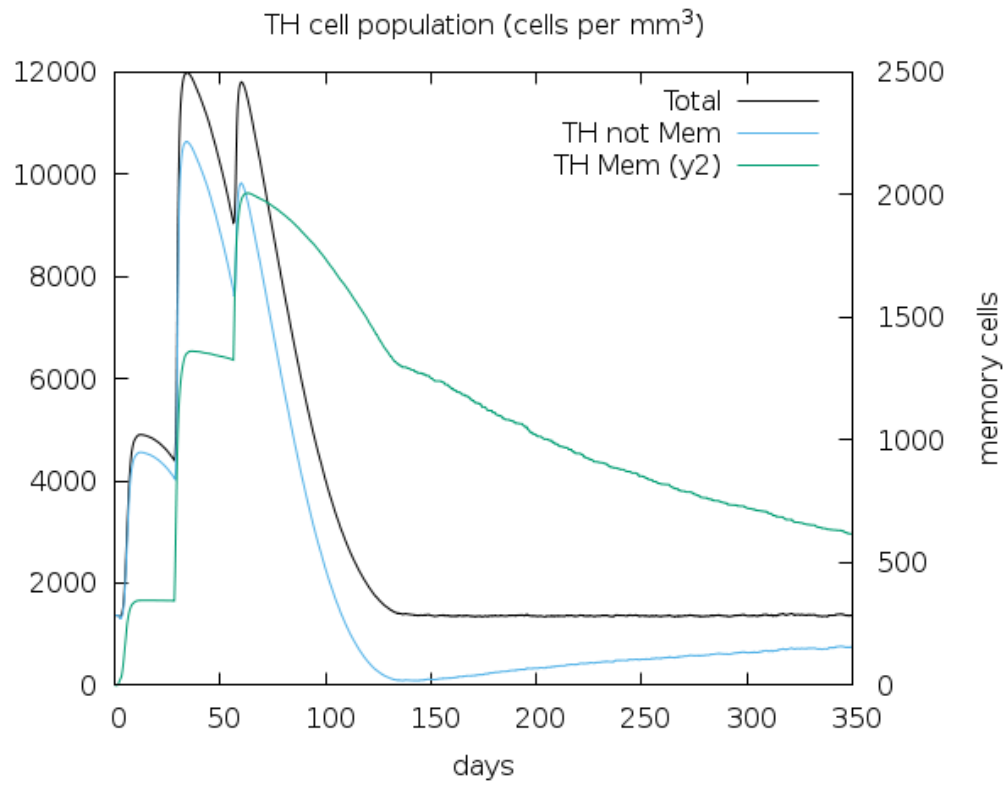
Supplementary Figure 6: Antigen and immunoglobulin levels, subdivided per isotype.



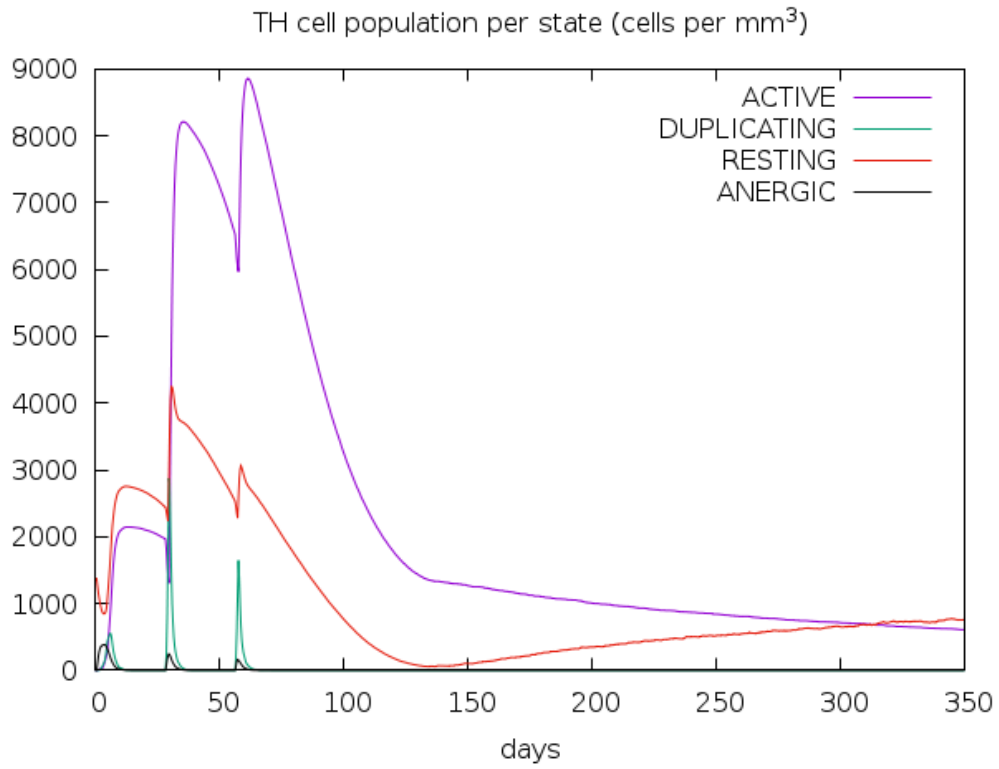
Supplementary Figure 7: B lymphocytes by total count, memory or non-memory, and isotype (IgM, IgG1, IgG2).



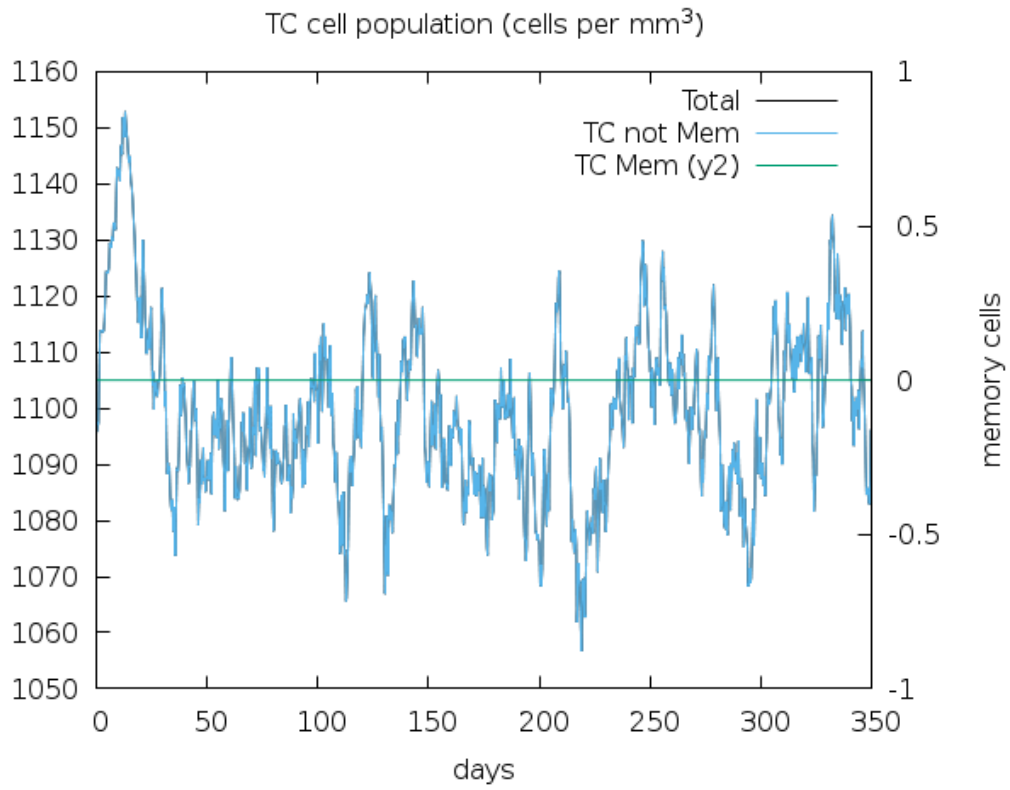
Supplementary Figure 8: B lymphocyte counts based on presentation (active, presenting on MHC class-II, internalized the antigen, duplicating, or anergic).



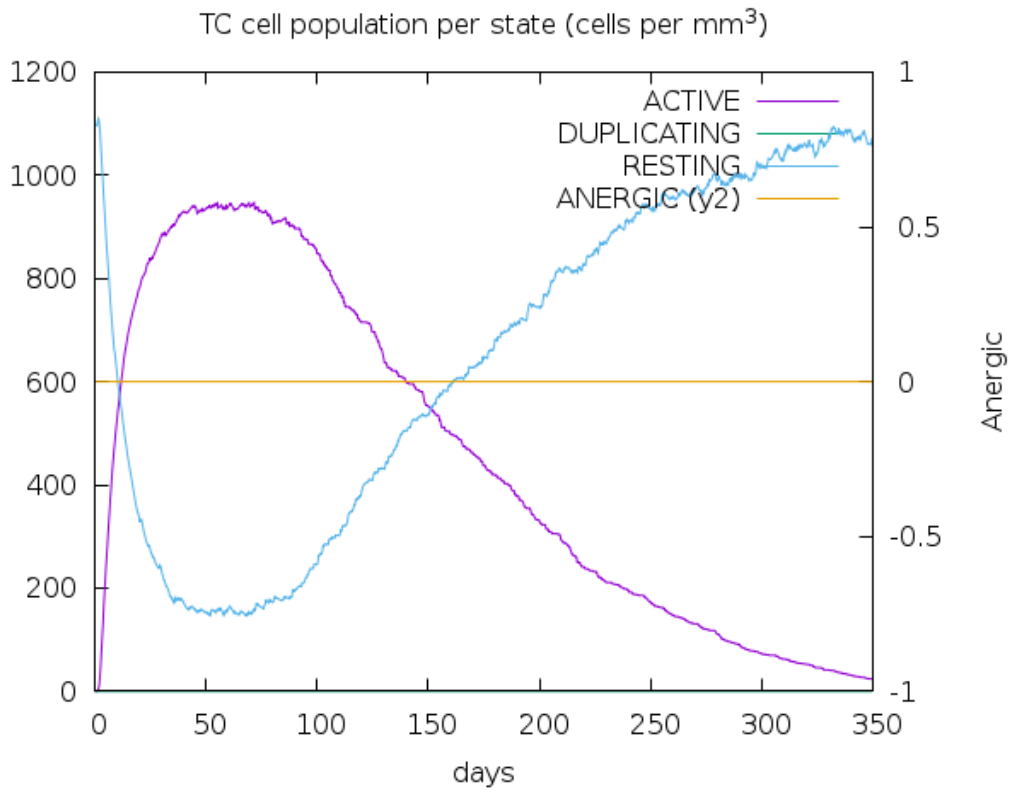
Supplementary Figure 9: Total, memory, and non-memory counts for CT4 T-helper lymphocytes.



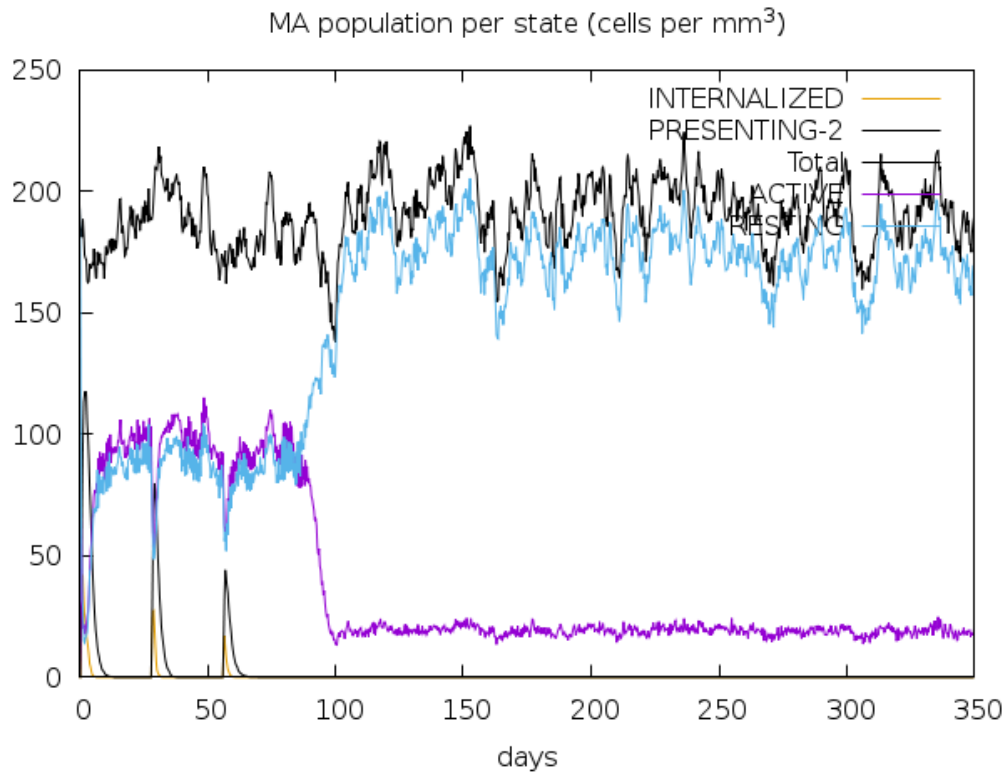
Supplementary Figure 10: Active, resting, anergic, and duplicating counts for CD4 T-helper lymphocytes.



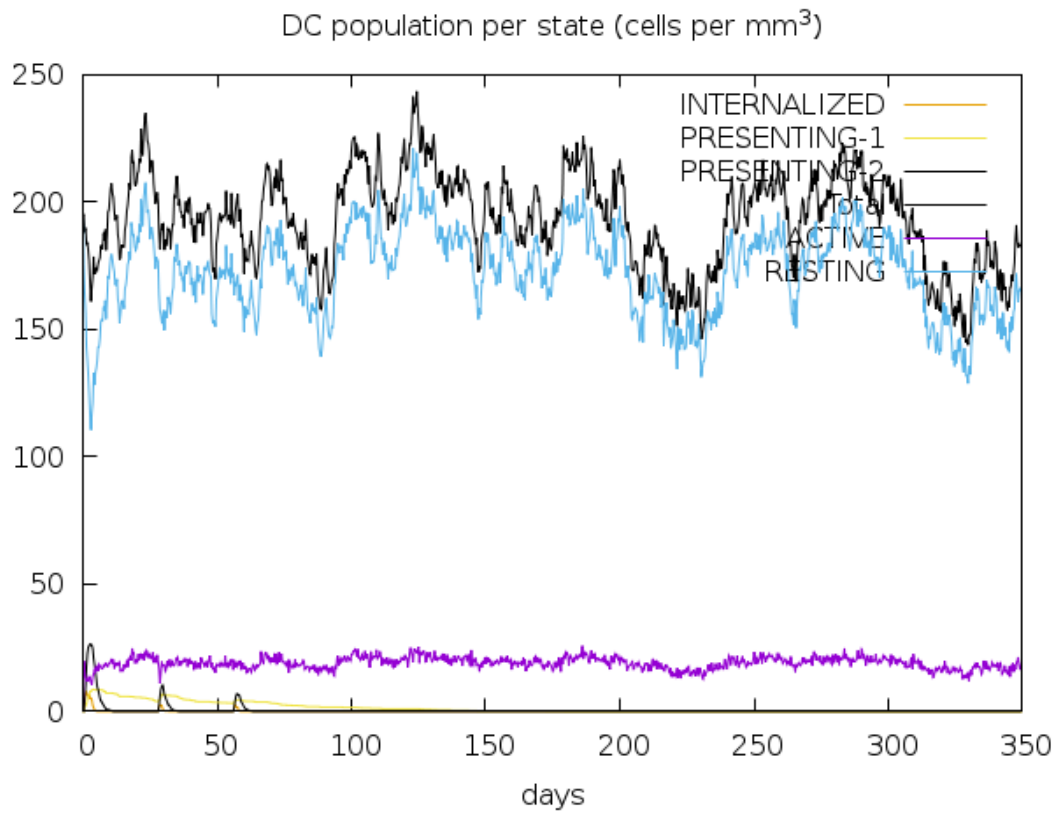
Supplementary Figure 11: Total, memory, and non-memory counts for CD8 T-cytotoxic lymphocytes.



Supplementary Figure 12: Active, duplicating, resting, and anergic counts for CD8 T-cytotoxic lymphocytes.



Supplementary Figure 13: Total, antigen internalized, presenting on MHC class-II, active, and resting counts for macrophages.



Supplementary Figure 14: Total, internalized, presenting on MHC class-I, presenting on MHC class-II, active, and resting counts for dendritic cells.