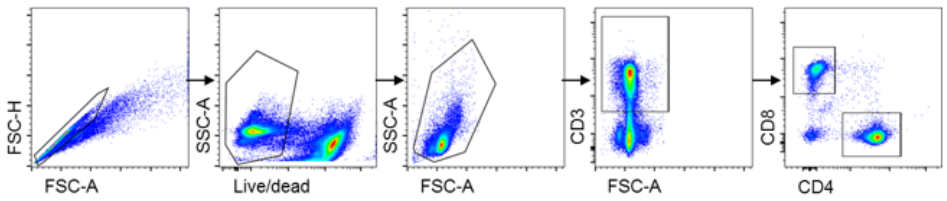
Supplymentary:

(**a**)



(**b**)

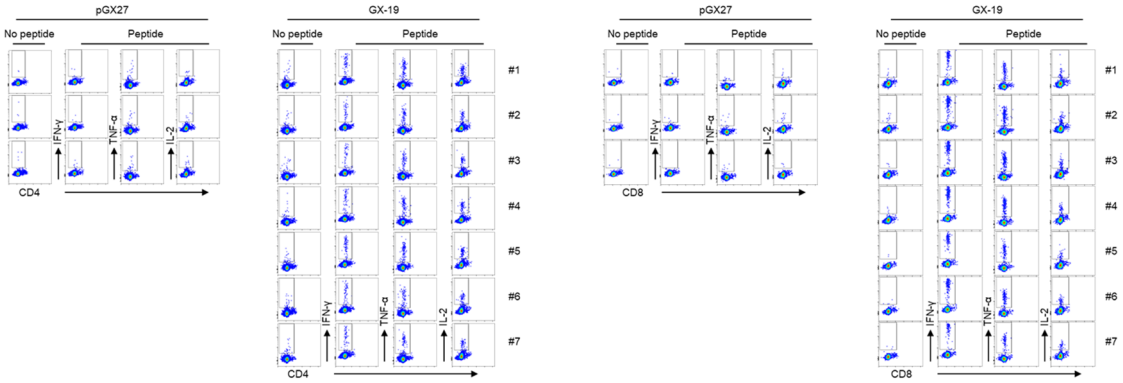
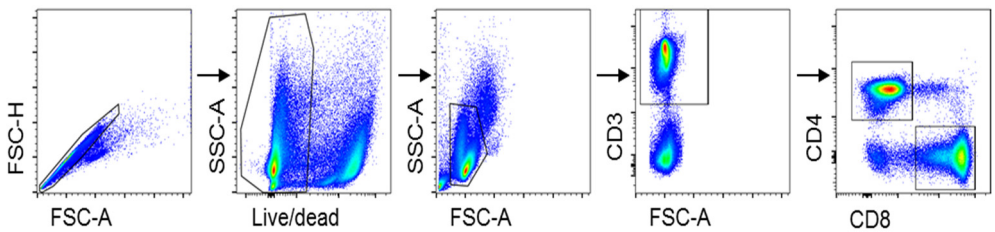


Figure 1. Flow cytometry panel to quantify SARS-CoV-2 S-specific mouse CD4⁺ or CD8⁺ T cells.

Mouse splenocytes were stimulated with specific peptide pools and then analyzed with multicolor flow cytometry to simultaneously detect SARS-CoV-2 S-specific expression of IFN-γ, TNF-α, and IL-2. Gating strategy to identify CD4⁺ or CD8⁺ T cells **(a)**. The representative plots show the frequencies of IFN-γ, TNF-α, IL-2 producing CD4⁺ or CD8⁺ T cells, respectively **(b)**.

(**a**)



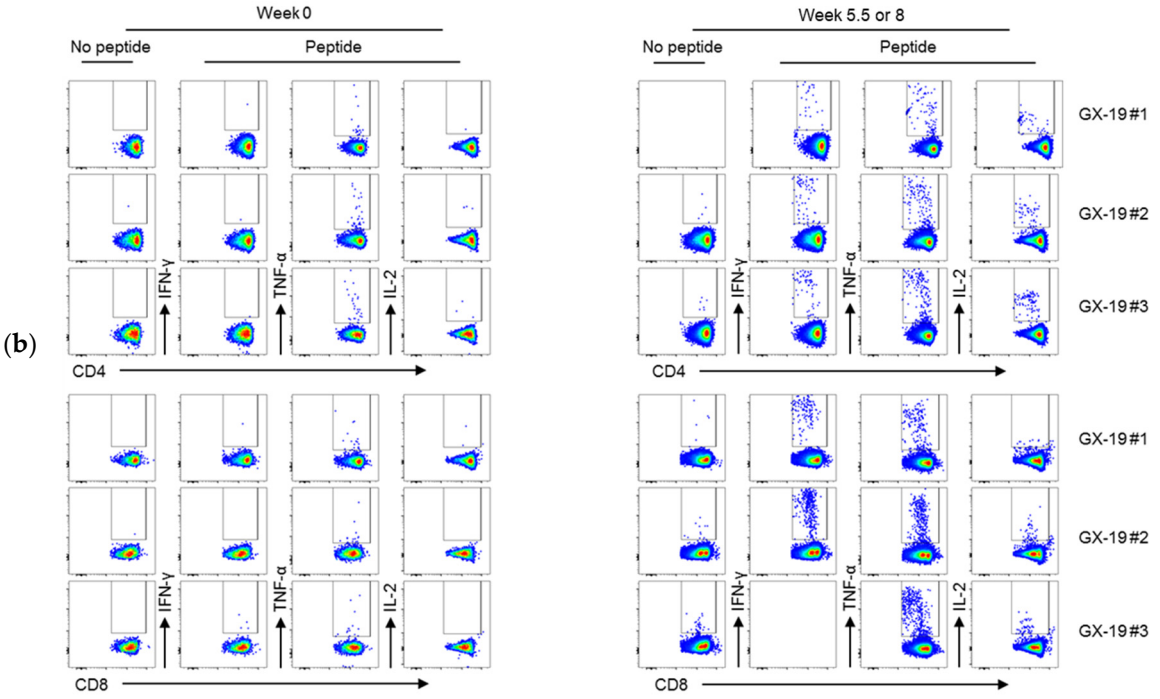
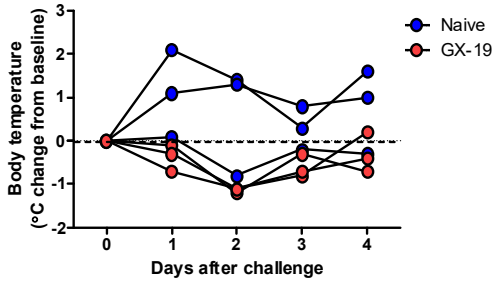
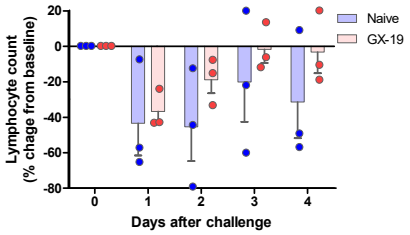


Figure 2. Flow cytometry panel to quantify SARS-CoV-2 S-specific NHP CD4⁺ or CD8⁺ T cells.

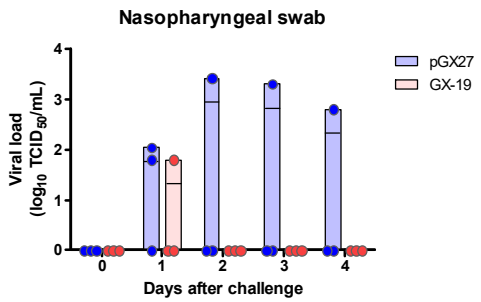
Cryopreserved PBMCs of GX-19 vaccinated macaques were stimulated with specific peptide pools and then analyzed with multicolor flow cytometry to simultaneously detect SARS-CoV-2 S-specific expression of IFN-γ, TNF-α, and IL-2. Gating strategy to identify CD4⁺ or CD8⁺ T cells **(a)**. The representative plots show the frequencies of IFN-γ, TNF-α, IL-2 producing CD4⁺ or CD8⁺ T cells, respectively **(b)**.



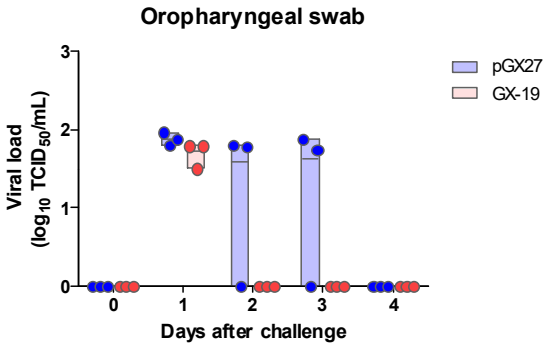
(a)



(b)



(c)



(d)

Figure 3. Clinical signs and $TCID_{50}$/mL in macaques challenged with SARS-CoV-2 after vaccination with GX-19.

Non-vaccinated and vaccinated macaques (*n*=3/group) were challenged with 2.7 x 10^7 $TCID_{50}$ SARS-CoV-2. After viral challenge, macaques were anesthetized for checking body temperature **(a)**, and blood lymphocyte count **(b)** at 0, 1, 2, 3, and 4 days post-infection (dpi). $TCID_{50}$/mL was measured in nasopharyngeal **(c)**, and oropharyngeal **(d)** at multiple time-points following challenge. *P* values determined by Mann-Whitney test;