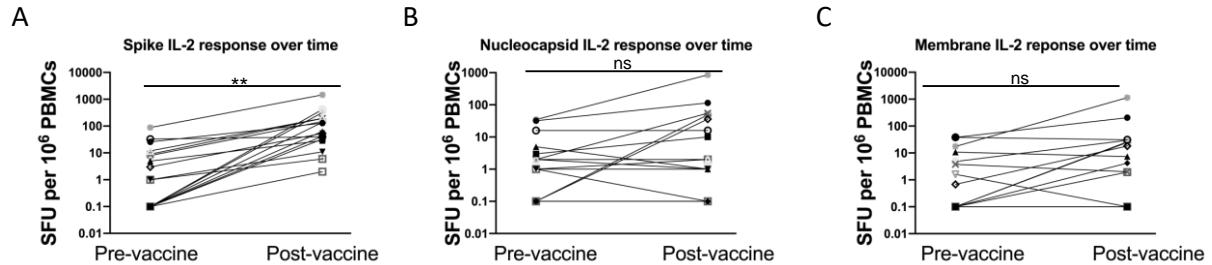


## Spike alignment

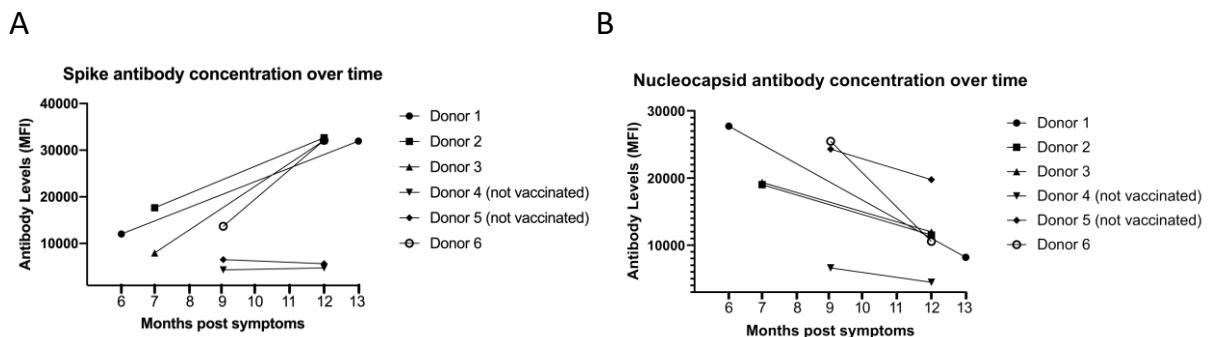
## Membrane alignment

## Nucleocapsid alignment

**Figure S1: Alignment of peptide sequences from spike, nucleocapsid and membrane proteins shows areas of overlap for each protein.** Alignments performed using clustal omega and visualised by UGENE.



**Figure S2: Vaccination increases IL-2 responses to Spike but not nucleocapsid or membrane peptides.** PBMCs were isolated from 17 donors with diagnosed long COVID pre- and post-vaccination. These PBMCs were stimulated with spike, nucleocapsid or membrane peptides and IL-2 responses were measured by fluorospot assay as spot forming units per million PBMCs. Each condition was run in duplicate and an unstimulated control was subtracted to remove background cytokine production.  $P < 0.01$  and ns= not significant by Wilcoxon Signed-Rank Test.



**Figure S3: Spike antibodies are confounded by vaccination while nucleocapsid antibodies wane quickly.** Antibody levels were quantified from 6 donors before and after vaccination using multiplex particle-based flow cytometry for A) spike (not significant by Wilcoxon Signed-Rank) or B) nucleocapsid antibodies ( $p < 0.05$  by Wilcoxon Signed-Rank).