

In the format provided by the authors and unedited.

Pre-existing immunity to influenza virus hemagglutinin stalk might drive selection for antibody-escape mutant viruses in a human challenge model

Jae-Keun Park¹, Yongli Xiao¹, Mitchell D. Ramuta^{1,5}, Luz Angela Rosas¹, Sharon Fong¹, Alexis M. Matthews¹, Ashley D. Freeman¹, Monica A. Gouzoulis², Natalia A. Batchenkova¹, Xingdong Yang¹, Kelsey Scherler³, Li Qi¹, Susan Reed², Rani Athota², Lindsay Czajkowski², Alison Han², David M. Morens⁴, Kathie-Anne Walters³, Matthew J. Memoli², John C. Kash¹ and Jeffery K. Taubenberger¹✉

¹Viral Pathogenesis and Evolution Section, Laboratory of Infectious Diseases, Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA. ²LID Clinical Studies Unit, Laboratory of Infectious Diseases, Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA. ³Institute for Systems Biology, Seattle, WA, USA. ⁴Office of the Director, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA. ⁵Present address: Department of Pathology and Laboratory Medicine, University of Wisconsin–Madison, Madison, WI, USA. ✉e-mail: taubenbergerj@niaid.nih.gov

Supplementary Table 1. List of primers and probes used for SNP assay, one-step RT-PCR, and influenza Matrix gene-based viral load quantification.

Oligo name	Oligo sequence (5' to 3')	Final concentration
SNP_For	GGATATGCAGCCGACCTGAA	950 nM
SNP_Rev	CCAGGTGGTTGAACTCTTTACCTACT	950 nM
SNP_probe_A388	[VIC] - CAGAATGCCATTGAC - [MGB/NFQ]*	250 nM
SNP_probe_V388	[FAM] - CAGAATGTCATTGACG - [MGB/NFQ]	250 nM
Initial 1-step RT-PCR_For	AACACCAGCCTCCCATTTC	500 nM
Initial 1-step RT-PCR_Rev	CAGTTCGGCATTGTAAGTCCA	500 nM
Flu_cDNA	AGCRAAAGCAGG	0.05 nM
Total_cDNA	Oligo(dT) ₂₀	1.25 nM
InfA_Matrix_Forward	GACCRATCCTGTCACCTCTGAC	750 nM
InfA_Matrix_Reverse	AGGGCATTYTGACAAAKCGTCTA	750 nM
InfA_Matrix_Probe	[FAM]-TGCAGTCCTCGCTCACTGGGCACG-[BHQ1]	250 nM
GAPDH_Forward	catalog no. 4352932E (ThermoFisher, USA)	
GAPDH_Reverse		
GAPDH_Probe		

* [MGB/NFQ] - minor groove binder and nonfluorescent quencher