Appendix for

Ability of AZD1222 vaccination to elicit neutralising antibodies against SARS-CoV-2 VOC B.1.617.2 (Delta)

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Clinical cohort

Two prospective cohorts of Legacy participants were established in January 2021 (NCT04750356). Participants were included if they were an employee of either UCLH or the Francis Crick Institute and had submitted at least one sample for RT-qPCR occupational health testing for COVID-19 using the Crick testing pipeline. Participants consisted of patient-facing healthcare workers at UCLH, who had received at least one dose of a currently licensed COVID-19 vaccine and Crick staff. Participants were sampled at approximately 3 weeks post-vaccination and invited for follow-up visits at approximately 6 and 12 weeks. All participants were sampled at each visit with additional nasopharyngeal RT-qPCR for SARS CoV-2 (in addition to their occupational health testing) to exclude concurrent active infection, blood was collected for serological assays. Participants were analysed by vaccine type, vaccine dose number, date since vaccine dose, and self-reported prior COVID-19 symptoms.

Serological Analysis and Live-virus Neutralisation

All serological analysis, including live-virus neutralisation assay, were performed exactly as previously described (**Wall, Wu et al., Lancet, 2021**)

Data analysis, statistics

Study data were collected and managed using REDCap electronic data capture tools hosted at University College London[8,9]. Data were exported from REDCap into R for visualisation and analysis. IC50 values above the quantitative limit of detection of the assay (>2560) were recoded as 5120; IC_{50} values below the quantitative limit of the assay (< 40) but within the qualitative range were recoded as 10 and data below the qualitative range (i.e. no response observed) were recoded as 5. These changes do not affect any statistical parameters considered in the analysis and we do not perform analyses that consider that consider the absolute value of the points – i.e. rank-based analyses are used instead: statistical significance of the difference in median viral neutralisation IC_{50} values between different strains was performed using a paired Wilcoxon Ranked sum test. *p*-values reported have not been corrected for multiple testing. Fold-changes in median NAbTs (and 95% confidence intervals) between BNT162b2 and AZD1222 cohorts were determined using bootstrap statistics using the '*boot'* package in R, specifying vaccine type using the *strata* option. All graphs were generated using the '*ggplot2'* package. Analyses of stratified NAb responses by strain, vaccine type, and COVID symptoms of participants, were carried out using the *prop.test* function of the '*stats'* package in R, and ordered logistic regression using the *lrm* function of

the Regression Modeling Strategies (‘*rms*’) package in R, using the formula IC50 ~Strain*VaccineType or IC50 ~Strain*COVIDsymptoms , and *p*-values were calculated using the Wald Chi-Square test. Analysis of variance was carried out using the *anova* function in R.

Data Sharing

All data (anonymised) and full R code to produce all figures and statistical analysis presented in this manuscript are freely-available online on Github: https://github.com/davidlvb/Crick-UCLH-Legacy-AZ-VOCs-2021-06

Ethics

The Legacy study was approved by London Camden and Kings Cross Health Research Authority (HRA) Research and Ethics committee (REC) IRAS number 286469 and sponsored by University College London.

Role of the funding source

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Contributors Statement

Emma C Wall - Investigation, Data Curation, Writing - original draft. Has access to & has verified underlying data.
Mary Wu - Investigation, Methodology, Resources, Writing – review & editing, Conceptualization
Ruth Harvey - Investigation, Methodology, Resources, Writing – review & editing, Conceptualization
Gavin Kelly - Formal Analysis, Validation
Scott Warchal - Software, Methodology, Formal Analysis
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Emine Hatipoglu - Project administration, Conceptualization
Yenting Ngai - Project administration, Conceptualization
Saira Hussain - Investigation, Resources
Karen Ambrose - Supervision, Software, Methodology

Supplementary References

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