Supplemental information

Functional immune responses against SARS-CoV-2 variants of concern after fourth COVID-19 vaccine dose or infection in patients with blood cancer

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Table S1: Ordinal regression model of factors associated with Omicron BA.1 NAbT responses after 4 vaccine doses

| Factor                                      | Coefficient | S.E.  | Wald Z | P-value | Chi-Square | p-value |
|---------------------------------------------|-------------|-------|--------|---------|------------|---------|
| **Vaccine type (first and second dose)**    |             |       |        |         |            |         |
| BNT162b2 (vs ChAdOx1)                       |              |       |        |         |            |         |
| **Previous infection**                      |             |       |        |         |            |         |
| SarS-CoV-2 infection before second vaccine dose | 1.40        | 0.76  | 1.86   | 0.06    |            |         |
| **Diagnosis (vs acute leukaemia)**          |             |       |        |         |            |         |
| Chronic lymphocytic leukaemia               | 0.34        | 0.98  | 0.35   | 0.72    |            |         |
| Myelodysplastic syndrome                    | -0.95       | 1.41  | -0.67  | 0.50    |            |         |
| Myeloma                                     | 0.11        | 0.98  | 0.12   | 0.91    |            |         |
| Lymphoma                                    | 1.31        | 1.04  | 1.26   | 0.21    |            |         |
| **Anti-cancer therapy**                     |             |       |        |         |            |         |
| B cell-depleting therapy                    | -3.72       | 0.85  | -4.35  | <0.0001 | 18.89      | <0.0001 |
| Chemo- or targeted therapy                  | -0.15       | 0.64  | -0.24  | 0.81    | 0.06       | 0.81    |

NAbT were binned in undetected/low (<=40), moderate (>40-256), or high (>256) †For anti-cancer therapy indicated treatment was tested for patients who received the treatment vs patients not receiving that treatment. BTKi, Bruton’s tyrosine kinase inhibitor.

Table S2: Ordinal regression model of factors associated with Omicron BA.2 NAbT responses after 4 vaccine doses

| Factor                                      | Coefficient | S.E.  | Wald Z | P-value | Chi-Square | p-value |
|---------------------------------------------|-------------|-------|--------|---------|------------|---------|
| **Vaccine type (first and second dose)**    |             |       |        |         |            |         |
| BNT162b2 (vs ChAdOx1)                       | -0.01       | 0.51  | -0.02  | 0.98    |            |         |
| **Previous infection**                      |             |       |        |         |            |         |
| SarS-CoV-2 infection before second vaccine dose | 0.76        | 0.76  | 1.00   | 0.32    |            |         |
| **Diagnosis (vs acute leukaemia)**          |             |       |        |         |            |         |
| Chronic lymphocytic leukaemia               | 0.85        | 1.00  | 0.85   | 0.40    |            |         |
| Myelodysplastic syndrome                    | 1.17        | 1.55  | 0.75   | 0.45    |            |         |
| Myeloma                                     | 1.52        | 1.04  | 1.46   | 0.14    |            |         |
| Lymphoma                                    | 1.57        | 1.06  | 1.48   | 0.14    |            |         |
| **Anti-cancer therapy**                     |             |       |        |         |            |         |
| B cell-depleting therapy                    | -3.01       | 0.81  | -3.73  | 0.0002  | 13.88      | 0.0002  |
| Chemo- or targeted therapy                  | -0.62       | 0.73  | -0.85  | 0.40    | 0.72       | 0.40    |

NAbT were binned in undetected/low (<=40), moderate (>40-256), or high (>256) †For anti-cancer therapy indicated treatment was tested for patients who received the treatment vs patients not receiving that treatment. BTKi, Bruton’s tyrosine kinase inhibitor.