**Supplementary table X.** Validation results. **Note:** N = Number of participants.

| **Phenotype** | **ID** | **Main analysis** | | | **Validation** | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **N** | **OR** | **P Value** | **N** | **OR** | **P Value** |
| One-dose antibody response | rs2150392827 | 63,914 | 0.86 | 1.3e-25 | 11,016 | 0.89 | 8.9e-04 |
| One-dose antibody response | rs9268847 | 63,672 | 0.86 | 1.1e-20 | 10,950 | 0.85 | 4.4e-06 |
| One-dose antibody response | rs145945003 | 63,532 | 1.32 | 2.8e-15 | 10,909 | 1.22 | 1.7e-02 |
| One-dose antibody response | 6:32255712\_CAGTT\_C | 64,027 | 0.84 | 3.0e-14 | 11,041 | 0.97 | 5.5e-01 |
| One-dose antibody response | rs9268465 | 63,548 | 1.09 | 5.9e-09 | 10,926 | 1.14 | 3.0e-04 |
| One-dose antibody response | 6:32440321\_CTG\_C | 63,231 | 1.26 | 9.2e-09 | 10,915 | 1.21 | 4.0e-02 |
| One-dose antibody response | rs565122319 | 63,688 | 0.78 | 3.3e-08 | 10,953 | 0.89 | 1.4e-01 |
| One-dose antibody response | rs7763805 | 62,686 | 1.11 | 2.7e-08 | 10,686 | 1.08 | 1.5e-01 |
| One-dose antibody response | rs9461694 | 59,088 | 0.87 | 1.4e-08 | 10,188 | 0.94 | 3.1e-01 |
| One-dose antibody response | rs2523496 | 63,729 | 0.93 | 5.0e-08 | 10,991 | 0.95 | 1.7e-01 |
| Two-dose antibody response | rs114903158 | 37,649 | 0.86 | 3.9e-11 | 6,569 | 0.94 | 2.1e-01 |
| Two-dose antibody response | rs3094106 | 39,055 | 0.89 | 8.4e-09 | 6,946 | 1.09 | 1.4e-01 |
| Breakthrough susceptibility | rs73062389 | 202,596 | 1.22 | 4.1e-38 | 43,341 | 1.22 | 1.7e-07 |
| Breakthrough susceptibility | rs59776512 | 202,018 | 1.11 | 3.9e-12 | 43,126 | 1.10 | 4.3e-03 |
| Breakthrough susceptibility | rs16861415 | 202,133 | 0.84 | 4.4e-33 | 43,130 | 0.88 | 3.4e-04 |
| Breakthrough susceptibility | rs71322420 | 197,848 | 0.93 | 8.1e-12 | 41,981 | 0.96 | 9.2e-02 |
| Breakthrough susceptibility | rs13097481 | 191,584 | 1.04 | 1.7e-08 | 40,657 | 1.04 | 3.0e-02 |
| Breakthrough susceptibility | rs11673136 | 202,596 | 1.08 | 5.0e-26 | 43,341 | 1.06 | 9.8e-04 |
| Breakthrough susceptibility | rs778809 | 202,596 | 1.07 | 1.3e-18 | 43,341 | 1.06 | 9.0e-04 |
| Breakthrough susceptibility | rs681343 | 202,596 | 0.94 | 4.6e-14 | 43,341 | 0.94 | 5.2e-04 |
| Breakthrough susceptibility | rs1977830 | 199,284 | 0.94 | 1.2e-11 | 42,134 | 0.98 | 2.9e-01 |
| Breakthrough severity | rs62038344 | 47,791 | 0.57 | 1.2e-10 | 9,331 | 0.98 | 8.8e-01 |

A screenshot of a computer screen

Description automatically generated

**Supplementary figure X.** Forest plot of results obtained from validation.