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Supplemental information

Comparative analysis of spike-specific IgG Fc glycoprofiles elicited by adenoviral, mRNA, and protein-based SARS-CoV-2 vaccines

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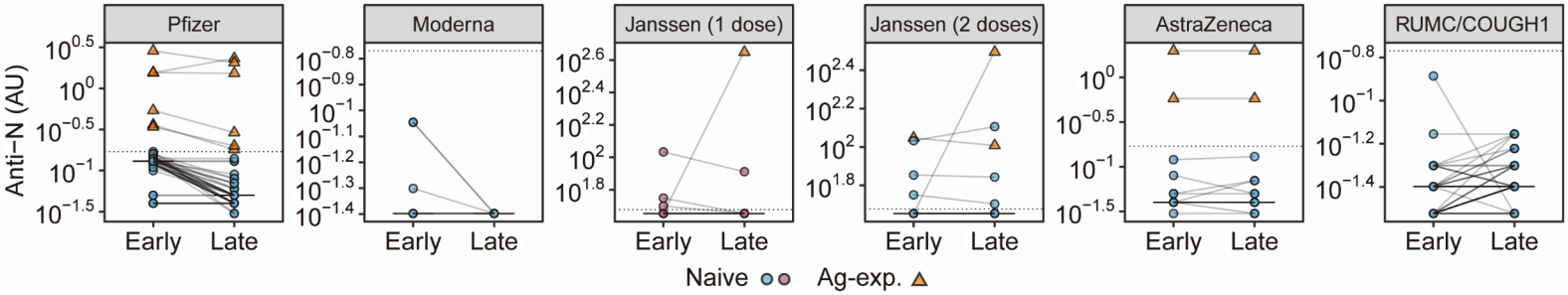

Figure S1. Anti-N levels in the study cohorts.
Anti-N levels at the first and last time point for Pfizer (n=39), Moderna (n=8), one (purple, n=39) or two (blue, n=39) doses Janssen (n=78), AstraZeneca (n=17), and RUMC/COUGH1 (n=45) for naive (blue and purple circle) and antigen-experienced (orange triangle) vaccinees, respectively. Anti-N levels for Janssen are expressed in ABU/mL. Total anti-N levels for the other cohorts are expressed in normalised OD (nOD) (Vogelzang et al., 2020) and the horizontal dotted line signifies the threshold, as previously determined (Vogelzang et al., 2020; Wieske et al., 2022). Anti-N levels for Janssen are therefore not comparable with the other cohorts.

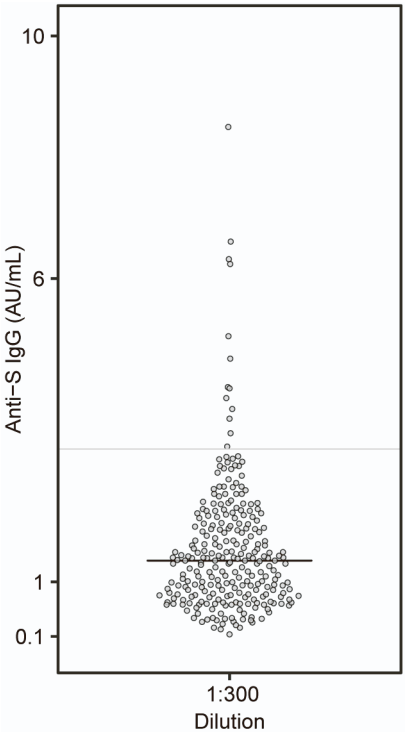

Figure S2. Pre-outbreak threshold.
The anti-S IgG levels of 264 pre-pandemic samples were determined at a 1:300 dilution. The pre-outbreak threshold of 6 AU/ml for seropositivity was determined based on the 95th percentile of these samples (grey line). Black line indicates median.

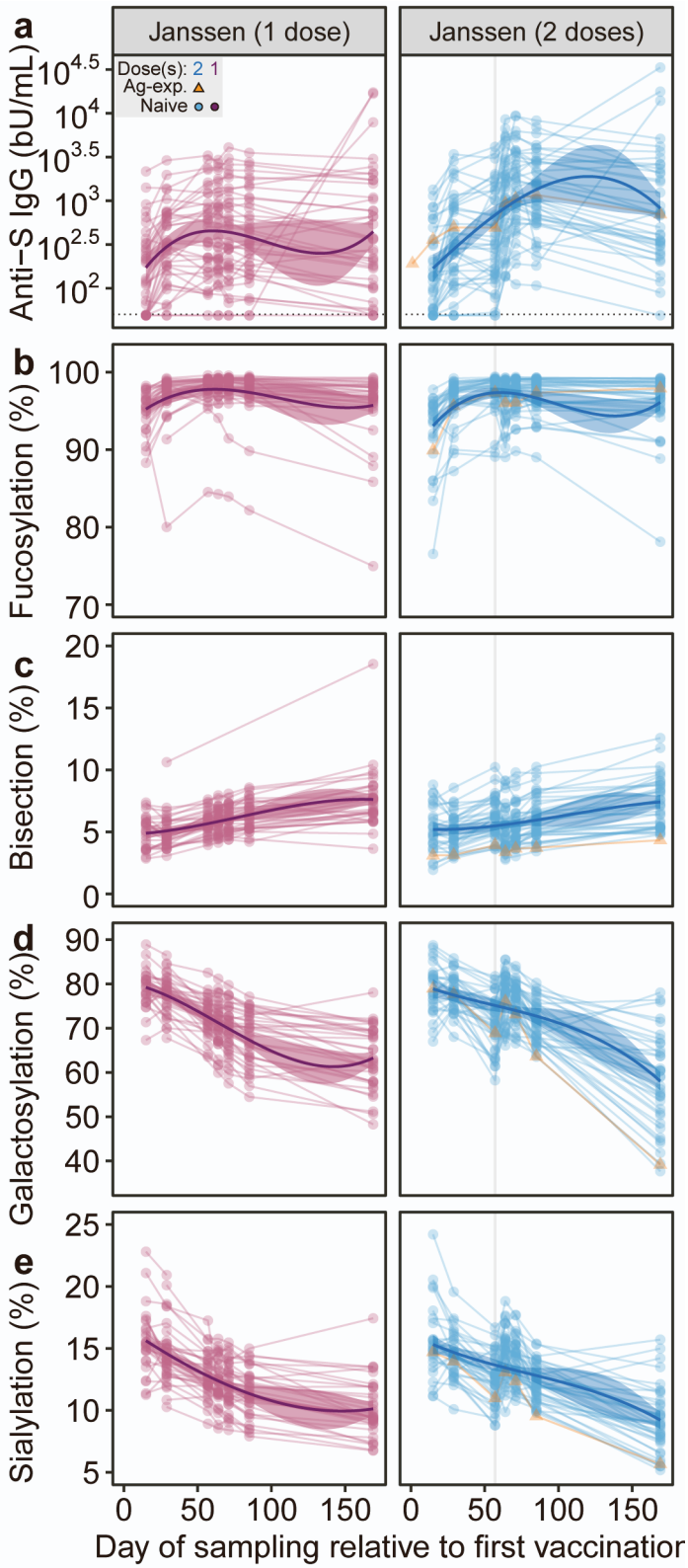

Figure S3. Anti-Spike IgG levels and Fc glycosylation for the Janssen cohort.
a Janssen longitudinal anti-S IgG levels in ABU/mL. IgG1 Fc **b** fucosylation, **c** bisection, **d** galactosylation, and **e** sialylation for individuals vaccinated with one (purple, n=39) or two (blue, n=39) doses for naive (circle) and antigen-experienced (triangle) vaccinees, respectively. Timing of the second vaccine dose is depicted vertically in grey. LC-MS data are shown for positive anti-S ELISA measurements.

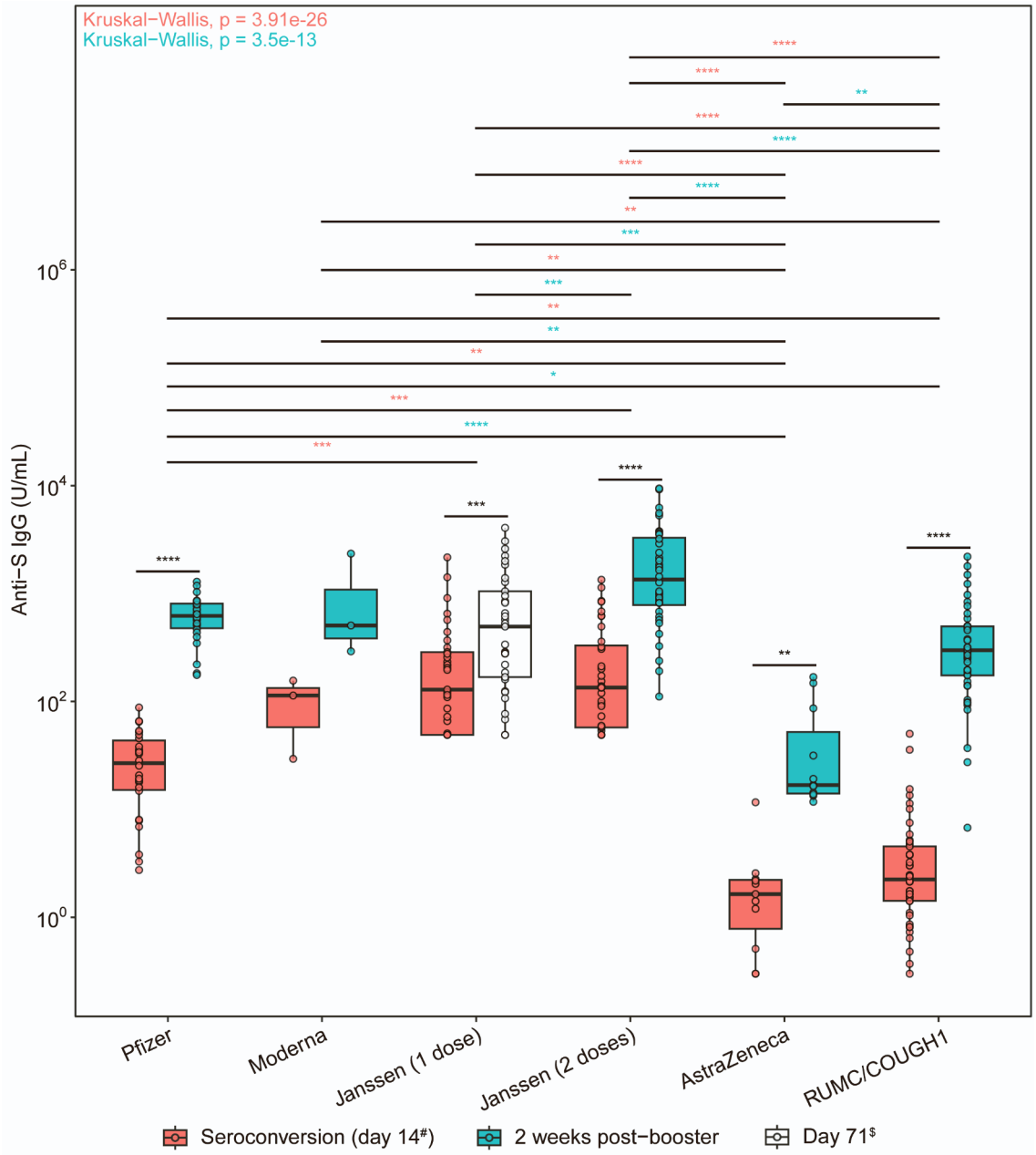

Figure S4. Comparison of anti-S IgG levels within and between cohorts at seroconversion and 2 weeks post-booster. Anti-S IgG levels around two weeks after the 1st (red) and 2nd (cyan, transparent) dose for Pfizer (n=39), Moderna (n=8), one (red and cyan, n=39) or two (red and transparent, n=39) doses Janssen, AstraZeneca (n=17), and RUMC/COUGH1 (n=45), as assessed by Kruskal-Wallis tests. Dunn's test was used to assess differences between cohorts in case of a significant Kruskal-Wallis test. Comparisons between two matched samples (within cohorts) were carried out with a Wilcoxon signed-rank test. Asterisks indicate the degree of significance as follows: *, **, ***, ****: *p*-value < 0.05, 0.01, 0.001, 0.0001, respectively. #Day 15 for the Janssen cohort. $Day 71 for one dose of the Janssen cohort as no booster was administered. Shown are only the naive vaccinees.

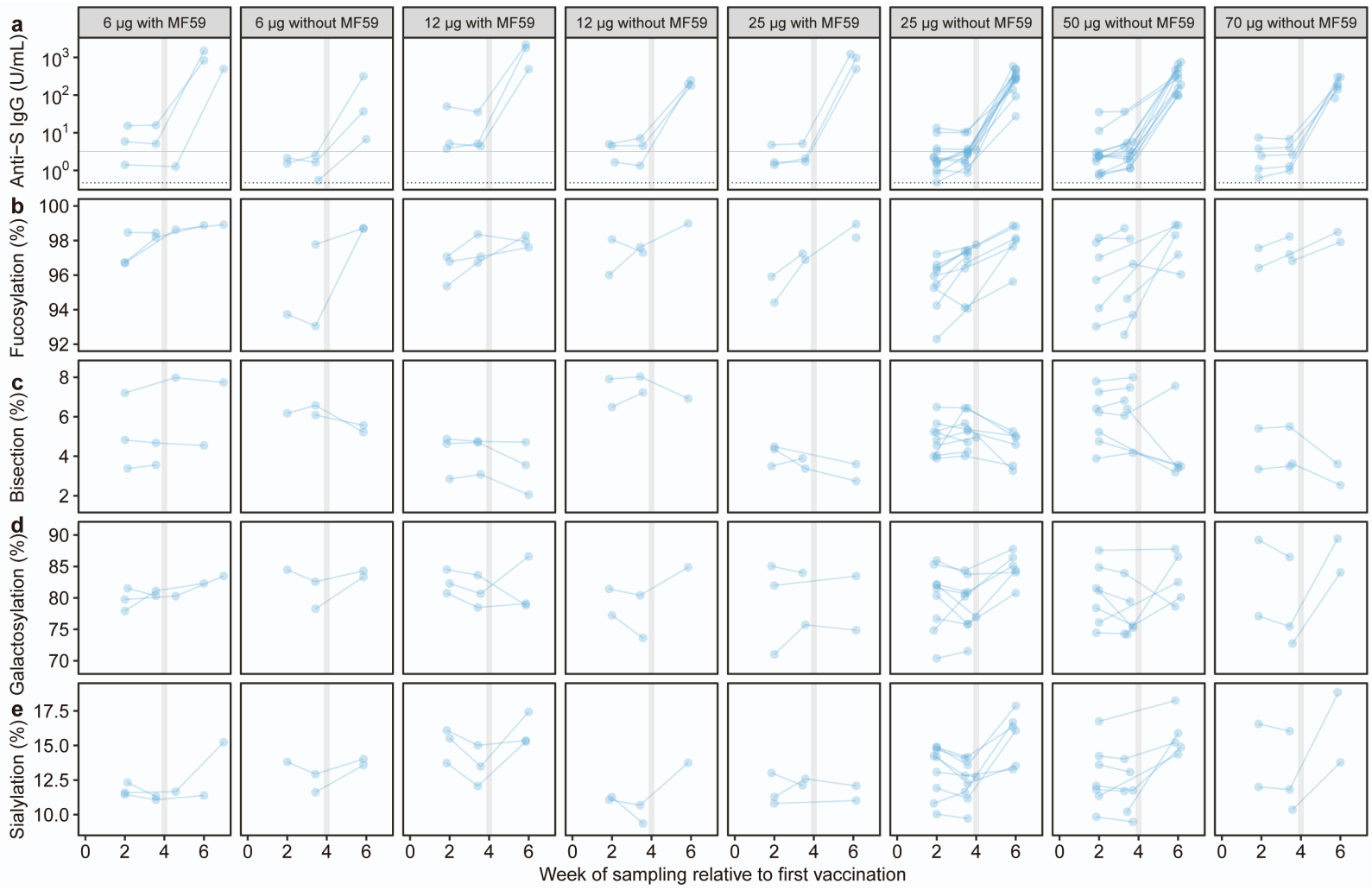

Figure S5. Anti-Spike IgG levels and Fc glycosylation for the RUMC/COUGH1 cohort.
a Longitudinal anti-S IgG levels. IgG1 Fc **b** fucosylation, **c** bisection, **d** galactosylation, and **e** sialylation for the different regimens of the RUMC/COUGH1 cohort (n=45). Timing of the second vaccine dose is depicted vertically in grey.

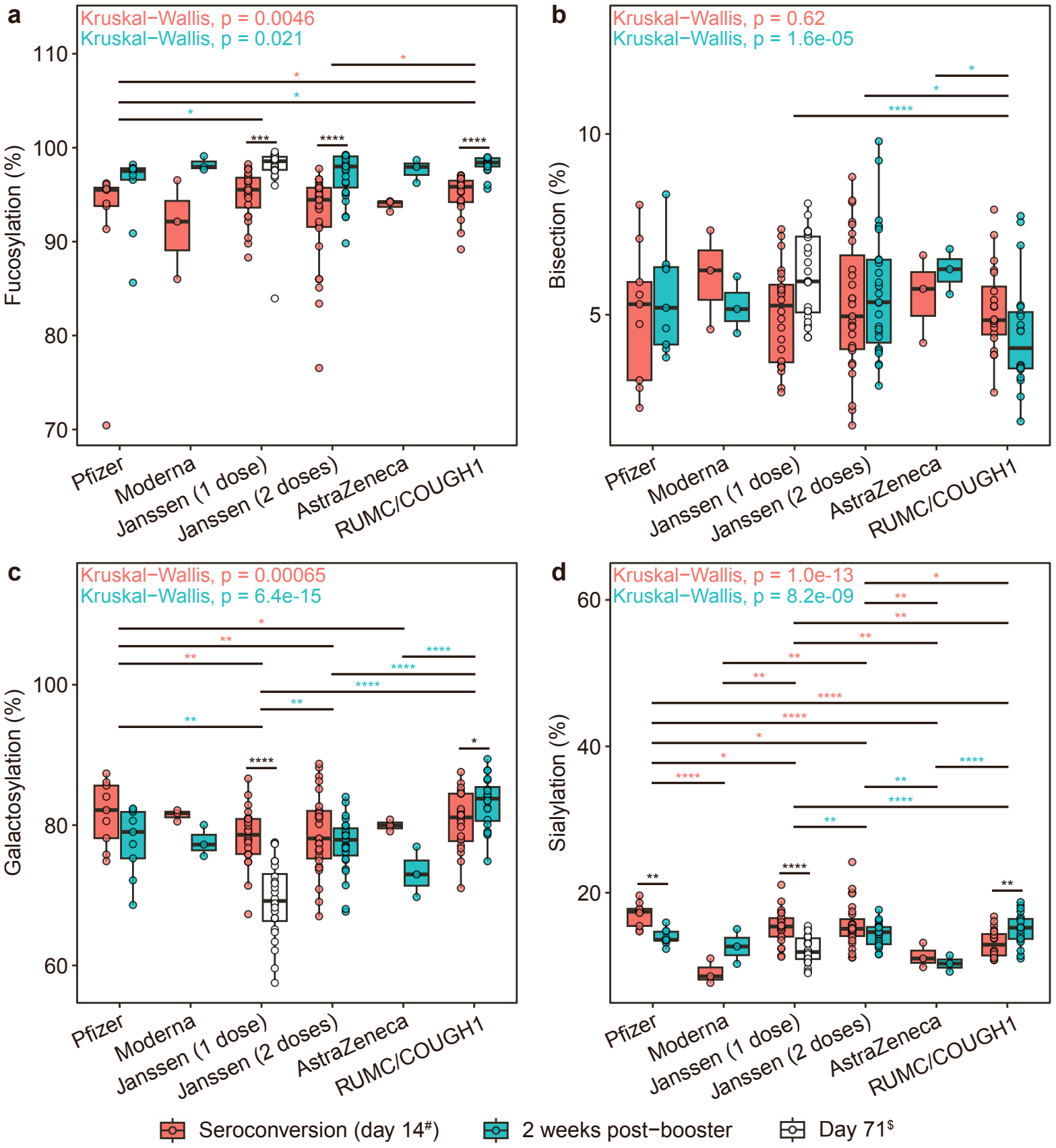

Figure S6. Comparison of anti-Spike IgG1 Fc glycosylation traits within and between cohorts at seroconversion and 2 weeks post-booster.

Anti-S IgG1 **a** fucosylation, **b** bisection, **c** galactosylation, and **d** sialylation around two weeks after the 1st (red) and 2nd dose (cyan, transparent) dose for Pfizer (n=39), Moderna (n=8), one (red and cyan, n=39) or two (red and transparent, n=39) doses Janssen, AstraZeneca (n=17), and RUMC/COUGH1 (n=45), as assessed by Kruskal-Wallis tests. Dunn's test was used to assess differences between cohorts in case of a significant Kruskal-Wallis test. Comparisons between two matched samples (within cohorts) were carried out with a Wilcoxon signed-rank test. Asterisks indicate the degree of significance as follows: *, **, ***, ****: *p*-value < 0.05, 0.01, 0.001, 0.0001, respectively. #Day 15 for the Janssen cohort. $Day 71 for one dose of the Janssen cohort as no booster was administered. Only naive vaccinees are shown.

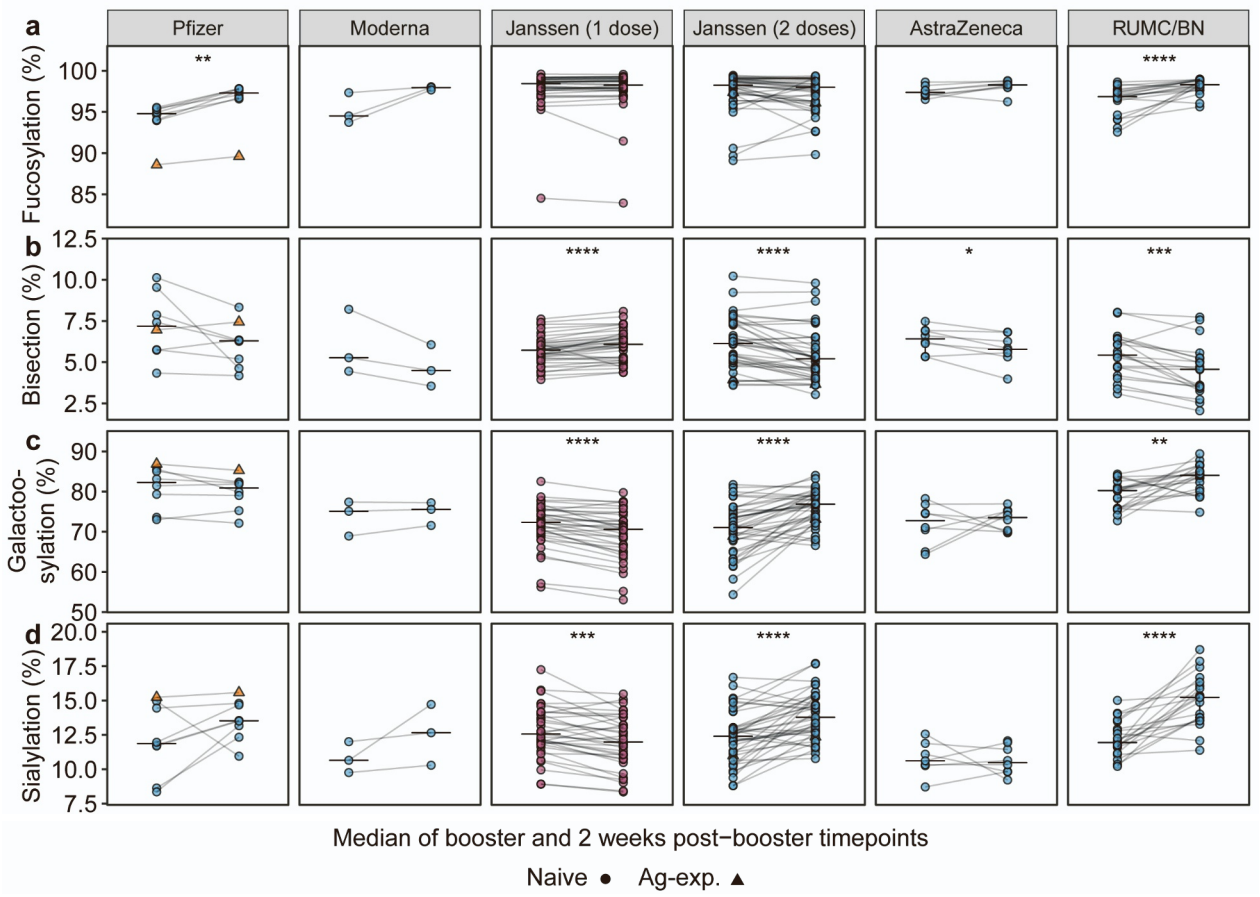

Figure S7. Comparison of anti-Spike IgG1 Fc glycosylation traits within cohorts at second dose and two weeks thereafter.

Anti-S IgG1 **a** fucosylation, **b** bisection, **c** galactosylation, and **d** sialylation at the day of 2nd dose and two weeks therafter for Pfizer (n=8), Moderna (n=3), Janssen (n=74), AstraZeneca (n=8), and RUMC/COUGH1 (n=20), as assessed by Wilcoxon signed-rank test. Asterisks indicate the degree of significance as follows: *, **, ***, ****: *p*-value < 0.05, 0.01, 0.001, 0.0001, respectively.

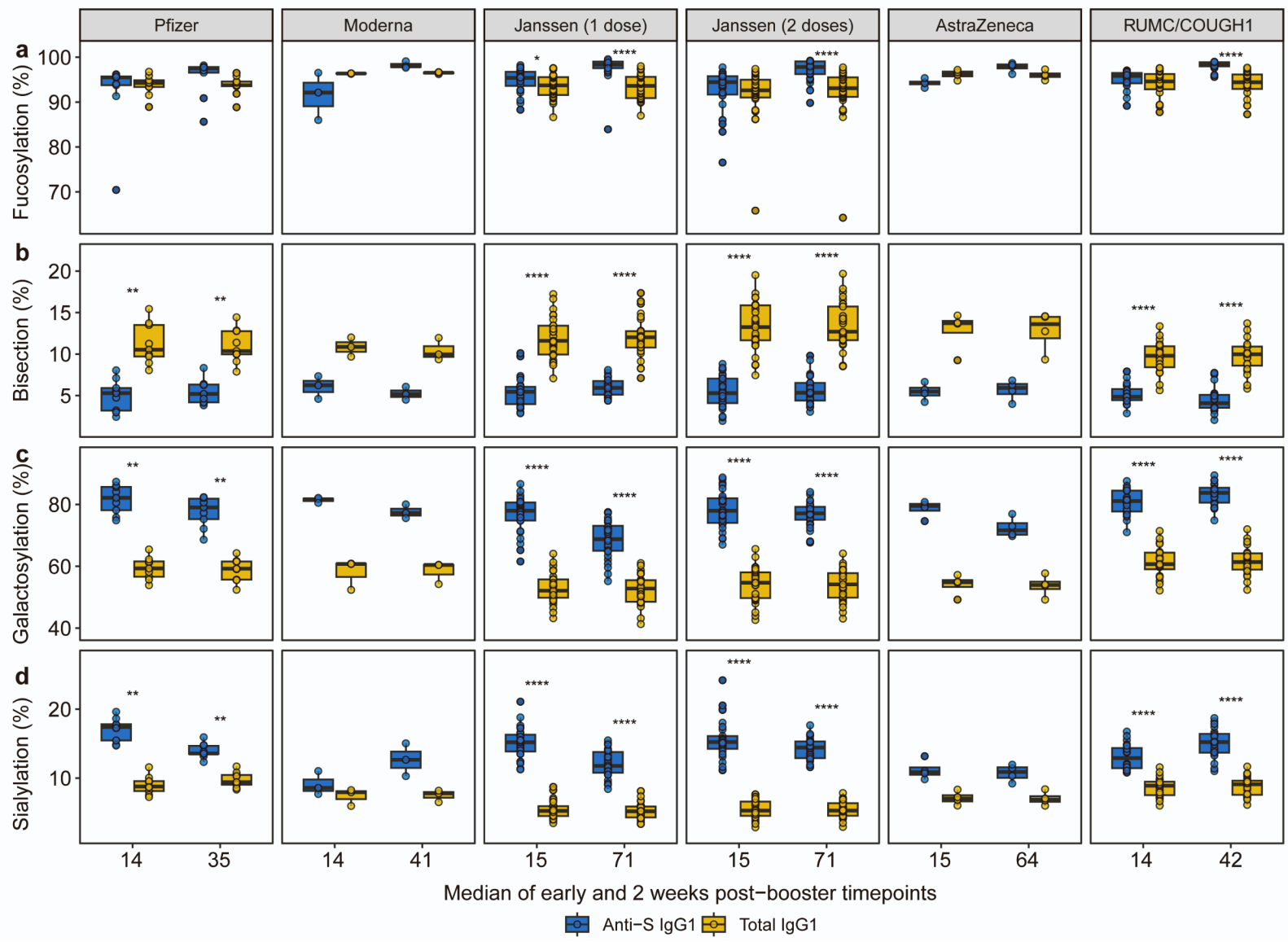

Figure S8. Comparison of anti-Spike and total IgG1 Fc glycosylation traits
a Fucosylation, **b** bisection, **c** galactosylation, and **d** sialylation for anti-S (blue) and total (yellow) IgG1 Fc around two weeks after the 1st and 2nd dose, as indicated by the median day on the x-axis, for Pfizer (n=39), Moderna (n=8), one or two doses Janssen, AstraZeneca (n=17). The comparisons between two matched samples at both timepoints were carried out with a Wilcoxon signed-rank tests. Asterisks indicate the degree of significance as follows: *, **, ***, ****: *p*-value < 0.05, 0.01, 0.001, 0.0001, respectively. Shown are only the naive vaccinees.

Supporting information

Adenoviral, mRNA, and protein-based SARS-CoV-2 vaccines elicit similar spike-specific IgG Fc glycoprofiles

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Table S1. Detailed description of Cohort 1 - BNT162b2 (Pfizer/BioNTech).

	Age (yrs)	Sex	Antigen experienced	Days between positive PCR and 1st dose	Days between doses	Serum-Analysis: Days upon 1st (2nd) vaccination
1203	40	F	Yes		21	0, 10, 14, 21(0), 25(4), 29(8), 31(10), 42(21), 49(29)
1182	49	F	No		21	1, 7, 14, 26(5), 28(7), 30(9), 35(14), 42(21), 49(28)
1561	26	F	No		23	1, 6, 8, 12, 14, 23(0), 26(3), 30(7), 44(21), 51(28)
1679	23	F	No		21	0, 6, 21(0), 49(28)
1675	23	F	Yes	287	21	1, 4, 8, 11, 14, 21(0), 26(5), 28(7), 33(12), 42(21), 49(28)
1897	27	F	No		20	0, 12, 15, 20(0), 39(19), 49(29)
1756	25	F	Yes	275	21	0, 7, 11, 15, 21(0), 26(5), 28(7), 32(11), 35(14), 43(22), 49(28)
1602	36	F	Yes	64	21	0, 2, 9, 13, 21(0), 23(2), 28(7), 34(13), 49(28)
1264	62	M	No		21	0, 3, 7, 10, 11, 14, 21(0), 24(3), 29(8), 31(10), 36(15), 49(28)
1476	51	F	No		21	0, 4, 7, 11, 15, 21(0), 25(4), 28(7), 33(12), 36(15), 43(22), 49(28)
1507	60	F	No		21	1, 5, 7, 9, 14, 21(0), 28(7), 30(9), 35(14), 42(21), 49(28)
1946	59	M	No		22	-4, 2, 7, 10, 14, 21, 24(2), 30(8), 38(16), 44(22), 49(27)
1950	37	F	No		21	1, 5, 7, 14, 21(0), 23(2), 27(6), 36(15), 42(21), 49(28)
1540	43	F	No		22	1, 7, 9, 14, 22(0), 26(4), 28(6), 34(12), 37(15), 50(28)
1130	34	M	No		22	1, 5, 7, 14, 22(0), 26(4), 29(7), 33(11), 36(14), 44(22), 50(28)
1109	57	M	No		21	1, 7, 9, 14, 21(0), 26 (5), 29(8), 35 (14), 42(21), 50(29)
1073	30	F	Yes	57	23	1, 8, 13, 23 (0), 30(7), 36(13), 49(26)
1169	44	F	No		24	3, 7, 10, 14, 21, 27(3), 31(7), 34(10), 38(14), 49(25)
1949	38	F	No		21	0, 3, 7, 13, 21(0), 24(3), 28(7), 31(10), 35(14), 49(28)
1317	39	F	No		21	0, 3, 7, 11, 21(0)
1291	29	M	No		21	0, 5, 8, 13, 15, 21(0), 27(6), 32(11), 48(27)
1992	61	F	No		22	0, 4, 5, 8, 11, 15, 22(0), 25(3), 29(7), 32(10), 41(19), 49(27)
1725	43	F	No		21	0, 4, 7, 14, 21(0), 25(4), 29(8), 34(13), 42(21), 49(28)
1219	25	F	No		21	1, 5, 7, 9, 21(0), 23(2), 28(7), 30(9), 35(14), 42(21), 49(28)
1987	30	F	No		21	1, 5, 7, 14, 21(0), 26(5), 28(7), 30(9), 35(14), 42(21), 49(28)
1361	51	F	No		21	0, 4, 6, 11, 14, 21(0), 25(4), 32(11), 36(15), 42(21), 49(28)
1844	57	M	No		21	0, 4, 7, 12, 14, 21(0), 26(5), 29(8), 35(14), 49(28)
1321	27	M	No		22	0, 8, 11, 15, 22(0), 29(7), 32(10), 43(21), 49(28)
1122	64	F	No		21	1, 5, 8, 12, 14, 21(0), 23(2), 28 (7), 30 (9), 36(15), 42(21), 50(29)
1750	59	F	No		22	1, 7, 14, 22(0), 26(4), 33(11), 35(13), 50(28)
1338	47	F	No		21	1, 6, 11, 13, 21(0), 25(4), 27(6), 33(12), 42(21), 49(28)
1857	36	F	No		22	0, 12, 22(0), 25(3), 36(14), 49(27)
1249	46	M	No		21	1, 5, 7, 9, 14, 21(0), 26(5), 28(7), 30(9), 35(14), 50(29)
1473	44	M	No		22	0, 6, 13, 22(0), 29(7), 36(14), 49(27)
1485	39	M	No		21	1, 5, 9, 13, 21(0), 23(2), 27(6), 42(21), 48(27)
1738	40	M	No		21	0, 3, 5, 10, 14, 21(9), 24(3), 26(5), 32(11), 34(13), 42(21), 49(28)

1757	33	F	Yes	288	20	0, 4, 7, 11, 14, 20(0), 22(2), 35(15), 49(27)
1902	34	M	No		22	0, 4, 11, 15, 22(0), 35(13), 41(19), 49(27)
1953	46	F	No		21	0, 4, 6, 10, 14, 19, 24(3), 27(6), 32(11), 35(14), 42(21), 49(28)
VC-001	58	M	No		21	0, 3, 7, 11, 14, 17, 21(0), 24(3), 28(7), 32(11), 35(14), 39(18), 42(21)
SCM	28	M	No		21	0, 4, 8, 11, 15, 18, 21(0), 25(4), 29(8), 31(10), 36(15), 39(18), 42(21)
TOA	35	M	No		21	-1, 3, 7, 10, 14, 17, 20, 24(3), 28(7), 30(9), 35(14), 38(17), 41(20)
ANSP	62	M	No		21	0, 4, 8, 11, 15, 18, 22(1), 25(4), 29(8), 32(11), 35(14), 43(22), 45(24)
COA	28	F	No		21	-1, 3, 6, 10, 13, 17, 20, 24(3), 27(6), 31(10), 34(13), 38(17), 41(20)
BAC	29	F	No		21	-1, 3, 6, 10, 13, 17, 20, 25(4), 27(6), 31(10), 34(13), 38(17), 41(20)
LUAN	59	F	No		21	0, 4, 8, 11, 15, 18, 22(1), 25(4), 32(11), 34(13), 36(15), 39(18), 43(22)
MIL	53	F	No		21	-1, 2, 6, 9, 13, 16, 20, 23(2), 27(6), 30(9), 34(13), 37(16), 41(20)
BEGI	55	F	No		21	0, 3, 7, 10, 14, 17, 21, 24(3), 28(7), 31(10), 35(14), 38(17), 42(21)

Table S2. Detailed description of Cohort 2 - SpikeVax (Moderna).

Participant	Age (yrs)	Sex	Antigen experienced	Days between doses	Serum-Analysis: Days upon 1st (2nd) dose
110819	27	F	No	28	0, 3, 7, 10, 21, 28(0), 35(7), 38(10), 42(14), 49(21), 56(28)
110821	42	F	No	28	0, 30, 11, 17, 24, 31(3), 35(7), 38(10), 49(21), 59(31)
110825	26	F	No	28	0, 3, 12, 17, 24, 28(0), 38(10), 41(13), 56(28)
110826	33	F	No	28	0, 5, 21, 28(0), 60(32)
110827	26	F	No	28	0, 4, 6, 11, 14, 21, 27, 31(3), 35(7), 38(10), 41(13), 60(32)
110828	56	F	No	28	3, 7, 10, 14, 21, 28(0), 38(19), 41(13), 49(21), 59(31)
110841	51	F	No	28	3, 7, 10, 20, 27, 31(3), 38(10), 42(14), 49(21), 55(27)
110842	33	F	No	28	0, 3, 11, 14, 20, 28(0), 31(3), 38(10), 48(20), 55(27)

Table S3. Detailed description of Cohort 3 - Jcovden (Janssen).

	Age (yrs)	Sex	Regimen	Antigen experienced	Days between doses	Days upon 1st (2nd) vaccination
1	68	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
2	25	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
3	25	M	1 dose	No		1, 15, 29, 64, 71, 85, 169
4	43	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
5	66	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
6	44	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
7	20	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
8	38	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
9	66	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
10	26	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
11	65	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
12	55	M	1 dose	During		1, 15, 29, 57, 64, 71, 85, 169
13	50	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
14	67	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
15	66	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
16	51	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
17	65	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
18	39	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
19	65	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
20	71	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
21	46	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
22	28	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
23	75	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
24	37	M	1 dose	No		57, 64, 71, 85, 169
25	71	M	1 dose	No		1, 15, 29, 57, 64, 71, 169
26	40	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
27	76	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
28	54	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
29	22	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
30	22	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
31	73	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
32	40	M	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
33	32	M	1 dose	No		1, 15, 29
34	52	M	1 dose	No		1, 15, 29, 64, 71, 85, 169
35	68	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
36	23	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
37	67	F	1 dose	No		1, 15, 29, 169
38	28	F	1 dose	No		1, 15, 29, 57, 64, 71, 85, 169
39	21	F	1 dose	No		1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
40	38	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
41	23	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
42	69	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
43	29	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
44	45	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
45	36	F	2 doses	No	57	57(0), 64(7), 71(14), 85(28), 169(112)
46	43	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
47	36	M	2 doses	Yes	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
48	48	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
49	40	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
50	51	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
51	69	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
52	73	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
53	67	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
54	79	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
55	46	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
56	22	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
57	50	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)

58	65	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
59	77	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
60	77	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
61	72	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
62	78	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
63	70	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
64	28	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
65	76	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
66	41	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
67	50	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
68	78	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
69	46	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
70	49	M	2 doses	No	57	15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
71	55	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
72	50	M	2 doses	During	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
73	42	F	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
74	38	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
75	27	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
76	77	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
77	25	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)
78	26	M	2 doses	No	57	1, 15, 29, 57(0), 64(7), 71(14), 85(28), 169(112)

Table S4. Detailed description of Cohort 4 - ChAdOx1 (AstraZeneca).

	Age (yrs)	Sex	Antigen experienced	Days between positive PCR and 1st dose	Days between doses	Serum-Analysis: Days upon 1st (2nd) dose
110289	61	M	No		78	0, 2, 7, 9, 14, 21, 28, 77, 85(7), 90(12), 92(14), 98(20), 105(27)
110764	60	F	No		78	0, 2, 7, 9, 14, 28, 78(0), 82(4), 97(19)
110808	64	F	No		56	2, 7, 9, 14, 21, 28, 56(0), 70(14), 77(21), 84(28)
110810	62	M	Yes	170	57	0, 2, 8, 26, 37, 57(0), 89(32)
110844	65	F	No		48	0, 4, 7, 11, 14, 21, 27, 48 (0), 56(8), 60(12), 62(14), 70(22), 83(35)
110845	60	F	No		49	0, 4, 7, 18, 26, 49(0), 53(4), 56(7), 63(14), 70(21), 77(28)
110846	65	F	No		48	0, 5, 14, 21, 26, 47, 61(13), 82(34)
110847	62	M	No		49	9, 5, 14, 26, 49(0), 54(5), 61(12), 63(14), 77(28)
110848	60	F	No		49	0, 4, 7, 21, 27, 49(0), 55(6), 67(18), 70(21), 76(27)
110849	65	F	No		49	0, 4, 7, 11, 14, 21, 49(0), 53(4), 56(7), 60(11), 63(14)
110850	62	F	No		48	0, 4, 11, 14, 21, 26, 48(0), 50(2), 55(7), 57(9), 62(14), 70(22)
110851	60	F	No		49	0, 49(0), 77(28)
110852	61	F	No		49	0, 4, 11, 14, 21, 25, 49(0), 53(4), 56(7), 60(11), 63(14), 70(21), 77(28)
110853	63	F	Yes	49		0, 21
110854	66	F	No		48	0, 4, 11, 14, 21, 27, 48(0), 50(2), 55(7), 57(9), 62(14), 69(21), 77(29)
110855	65	F	No		49	0, 4, 8, 11, 15, 22, 27, 49(0), 53(4), 57(8), 61(12), 64(15), 71(22), 76(27)
110856	65	M	No		43	-6, 5, 8, 15, 20, 43, 48(0), 50(7), 58(15), 62(19)

Table S5. Detailed description of Cohort 5 - ABNCoV2 (Radboud University Medical Center and Bavarian Nordics A

Participant	Age (yrs)	Sex	Regimen	Antigen experienced	Days between positive PCR and 1st dose	Days between doses	Days upon 1st (2nd) vaccination
AA - 0007	35	M	6 µg without MF59	No		28	14, 25, 42(14)
CA - 2765	31	F	6 µg without MF59	No		27	14, 24, 41(14)
AD - 1006	21	F	6 µg without MF59	No		27	14, 24, 41(14)
BA - 0010	27	F	6 µg with MF59	No		28	15, 25, 42(14)
BB - 3950	22	F	6 µg with MF59	No		35	14, 32, 49(14)
BC - 0024	52	F	6 µg with MF59	No		28	14, 25, 42(14)
AB - 0014	34	F	12 µg without MF59	No		28	15, 25, 42(14)
CB - 0120	23	F	12 µg without MF59	No		28	14, 25, 42(14)
CD - 3733	25	M	12 µg without MF59	No		27	13, 24, 41(14)
DB - 0083	22	M	12 µg with MF59	No		28	14, 25, 42(14)
DC - 0059	37	M	12 µg with MF59	No		27	13, 24, 41(14)
DD - 0091	37	F	12 µg with MF59	No		27	13, 24, 41(14)
EA - 0085	22	F	25 µg without MF59	No		28	14, 25, 42(14)
EB - 0116	28	F	25 µg without MF59	No		27	13, 24, 41(14)
FD - 0144	27	M	25 µg without MF59	No		27	13, 24, 41(14)
HB - 0079	54	F	25 µg with MF59	No		27	13, 24, 41(14)
FC - 0123	33	F	25 µg with MF59	No		28	14, 25, 43(15)
FE - 0176	48	M	25 µg with MF59	No		28	14, 25, 43(15)
GD - 0110	28	F	50 µg without MF59	No		28	15, 25, 42(14)
GH - 0253	25	M	50 µg without MF59	No		29	14, 25, 43(14)
HE - 0041	44	F	50 µg without MF59	No		29	14, 25, 42(13)
GB - 1012	20	F	50 µg without MF59	No		29	14, 25, 42(13)
HF - 0200	26	M	50 µg without MF59	No		29	14, 25, 42(13)
GF - 1010	22	F	50 µg without MF59	No		29	14, 25, 42(13)
FB - 0003	46	M	70 µg without MF59	No		29	14, 25, 42(13)
HC - 0168	21	F	70 µg without MF59	No		27	13, 24, 41(14)
GE - 0114	20	M	70 µg without MF59	No		27	13, 24, 41(14)
HD - 0169	20	F	70 µg without MF59	No		26	12, 23, 40(14)
IE - 0162	20	M	70 µg without MF59	No		27	13, 24, 41(14)
JE - 0224	43	F	70 µg without MF59	No		27	13, 24, 41(14)
JH - 0237	25	F	25 µg without MF59	No		28	14, 25, 42(14)
IG - 0303	24	M	25 µg without MF59	No		28	14, 25, 42(14)
IC - 0139	21	M	25 µg without MF59	No		28	14, 28, 42(14)
JK - 0411	24	F	25 µg without MF59	No		28	14, 25, 42(14)
JP - 1027	21	M	25 µg without MF59	No		28	14, 25, 42(14)
JQ - 1041	38	F	25 µg without MF59	No		28	14, 25, 42(14)
KA - 1058	23	M	25 µg without MF59	No		28	14, 24, 41(13)
IL - 1053	45	F	25 µg without MF59	No		28	14, 25, 42(14)
IM -1057	27	M	25 µg without MF59	No		28	14, 25, 42(14)
JN - 0423	18	M	50 µg without MF59	No		28	14, 24, 42(14)
IK - 1017	29	F	50 µg without MF59	No		28	14, 24, 41(13)
JL - 0417	22	M	50 µg without MF59	No		29	13, 26, 43(14)
GC - 0096	26	M	50 µg without MF59	No		27	13, 23, 41(14)
JO - 1018	21	F	50 µg without MF59	No		29	13, 26, 43(14)
KB - 0445	29	F	50 µg without MF59	No		27	14, 23, 41(14)

Table S6. Age comparison with ANOVA (p=3.23E-11) with Tukey's

	Pfizer	Moderna	Janssen	AstraZeneca	RUMC/BN
Pfizer		0.865	0.744	0.000875	0.00014
Moderna			0.537	0.00635	0.79
Janssen				0.00721	5.82E-08
AstraZeneca					1.34E-09
RUMC/BN					

Table S7. Spearman correlations between age and total IgG1 Fc glycosylation and levels in a sex stratified manner.
Correlations are shown as per cohort , at seroconversion (Cohort) or 2 weeks post-booster (Cohort2). NA: not applicable.

Cohort	Timepoint	Sex	var1	var2	R_S	*p* -value	adjusted *p* -value
AstraZeneca	Seroconversion	Female	Age	Total IgG1 bisection	-0.85	0.01	0.11
AstraZeneca	Seroconversion	Female	Age	Total IgG1 fucosylation	-0.30	0.52	0.91
AstraZeneca	Seroconversion	Female	Age	Total IgG1 galactosylation	-0.70	0.08	0.30
AstraZeneca	Seroconversion	Female	Age	Total IgG1 sialylation	-0.56	0.20	0.46
AstraZeneca	Seroconversion	Male	Age	Total IgG1 bisection	-1.00	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	Total IgG1 fucosylation	-1.00	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	Total IgG1 galactosylation	1.00	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	Total IgG1 sialylation	1.00	1.00	1.00
Janssen	Seroconversion	Female	Age	Total IgG1 bisection	0.41	0.12	0.34
Janssen	Seroconversion	Female	Age	Total IgG1 fucosylation	-0.39	0.13	0.35
Janssen	Seroconversion	Female	Age	Total IgG1 galactosylation	-0.62	0.01	0.09
Janssen	Seroconversion	Female	Age	Total IgG1 sialylation	-0.60	0.01	0.11
Janssen	Seroconversion	Male	Age	Total IgG1 bisection	0.36	0.03	0.18
Janssen	Seroconversion	Male	Age	Total IgG1 fucosylation	-0.32	0.07	0.29
Janssen	Seroconversion	Male	Age	Total IgG1 galactosylation	-0.23	0.18	0.44
Janssen	Seroconversion	Male	Age	Total IgG1 sialylation	-0.01	0.97	1.00
Moderna	Seroconversion	Female	Age	Total IgG1 bisection	0.10	0.87	1.00
Moderna	Seroconversion	Female	Age	Total IgG1 fucosylation	-0.21	0.74	1.00
Moderna	Seroconversion	Female	Age	Total IgG1 galactosylation	-0.67	0.22	0.50
Moderna	Seroconversion	Female	Age	Total IgG1 sialylation	-0.41	0.49	0.90
Pfizer	Seroconversion	Female	Age	Total IgG1 bisection	0.42	0.09	0.31
Pfizer	Seroconversion	Female	Age	Total IgG1 fucosylation	-0.38	0.13	0.35
Pfizer	Seroconversion	Female	Age	Total IgG1 galactosylation	-0.52	0.03	0.18
Pfizer	Seroconversion	Female	Age	Total IgG1 sialylation	-0.45	0.07	0.30
Pfizer	Seroconversion	Male	Age	Total IgG1 bisection	0.70	0.01	0.08
Pfizer	Seroconversion	Male	Age	Total IgG1 fucosylation	-0.18	0.56	0.92
Pfizer	Seroconversion	Male	Age	Total IgG1 galactosylation	-0.50	0.08	0.30
Pfizer	Seroconversion	Male	Age	Total IgG1 sialylation	-0.45	0.13	0.35
RUMC/BN	Seroconversion	Female	Age	Total IgG1 bisection	0.01	0.97	1.00
RUMC/BN	Seroconversion	Female	Age	Total IgG1 fucosylation	-0.16	0.53	0.92
RUMC/BN	Seroconversion	Female	Age	Total IgG1 galactosylation	0.09	0.74	1.00
RUMC/BN	Seroconversion	Female	Age	Total IgG1 sialylation	-0.11	0.68	1.00
RUMC/BN	Seroconversion	Male	Age	Total IgG1 bisection	0.54	0.04	0.21
RUMC/BN	Seroconversion	Male	Age	Total IgG1 fucosylation	0.03	0.92	1.00
RUMC/BN	Seroconversion	Male	Age	Total IgG1 galactosylation	0.03	0.91	1.00
RUMC/BN	Seroconversion	Male	Age	Total IgG1 sialylation	0.12	0.69	1.00
AstraZeneca	2 weeks post-booster	Female	Age	Total IgG1 bisection	-0.09	0.87	1.00
AstraZeneca	2 weeks post-booster	Female	Age	Total IgG1 fucosylation	0.06	0.91	1.00
AstraZeneca	2 weeks post-booster	Female	Age	Total IgG1 galactosylation	-0.46	0.35	0.71
AstraZeneca	2 weeks post-booster	Female	Age	Total IgG1 sialylation	-0.14	0.78	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Total IgG1 bisection	1.00	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Total IgG1 fucosylation	1.00	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Total IgG1 galactosylation	-1.00	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Total IgG1 sialylation	-1.00	1.00	1.00
Janssen (1 dose)	2 weeks post-booster	Female	Age	Total IgG1 bisection	0.44	0.15	0.38
Janssen (1 dose)	2 weeks post-booster	Female	Age	Total IgG1 fucosylation	-0.73	0.01	0.08
Janssen (1 dose)	2 weeks post-booster	Female	Age	Total IgG1 galactosylation	-0.29	0.36	0.72
Janssen (1 dose)	2 weeks post-booster	Female	Age	Total IgG1 sialylation	-0.46	0.13	0.35
Janssen (1 dose)	2 weeks post-booster	Male	Age	Total IgG1 bisection	0.38	0.09	0.30
Janssen (1 dose)	2 weeks post-booster	Male	Age	Total IgG1 fucosylation	-0.29	0.19	0.46
Janssen (1 dose)	2 weeks post-booster	Male	Age	Total IgG1 galactosylation	-0.09	0.68	1.00
Janssen (1 dose)	2 weeks post-booster	Male	Age	Total IgG1 sialylation	-0.11	0.62	0.96
Janssen (2 doses)	2 weeks post-booster	Female	Age	Total IgG1 bisection	-0.45	0.17	0.43
Janssen (2 doses)	2 weeks post-booster	Female	Age	Total IgG1 fucosylation	0.17	0.61	0.96
Janssen (2 doses)	2 weeks post-booster	Female	Age	Total IgG1 galactosylation	-0.82	0.00	0.06
Janssen (2 doses)	2 weeks post-booster	Female	Age	Total IgG1 sialylation	-0.63	0.04	0.21
Janssen (2 doses)	2 weeks post-booster	Male	Age	Total IgG1 bisection	0.32	0.11	0.34
Janssen (2 doses)	2 weeks post-booster	Male	Age	Total IgG1 fucosylation	0.01	0.95	1.00
Janssen (2 doses)	2 weeks post-booster	Male	Age	Total IgG1 galactosylation	-0.47	0.01	0.11
Janssen (2 doses)	2 weeks post-booster	Male	Age	Total IgG1 sialylation	-0.22	0.26	0.58
Moderna	2 weeks post-booster	Female	Age	Total IgG1 bisection	-0.21	0.74	1.00
Moderna	2 weeks post-booster	Female	Age	Total IgG1 fucosylation	0.15	0.81	1.00
Moderna	2 weeks post-booster	Female	Age	Total IgG1 galactosylation	-0.36	0.55	0.92
Moderna	2 weeks post-booster	Female	Age	Total IgG1 sialylation	-0.82	0.09	0.30
Pfizer	2 weeks post-booster	Female	Age	Total IgG1 bisection	1.00	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	Total IgG1 fucosylation	1.00	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	Total IgG1 galactosylation	-1.00	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	Total IgG1 sialylation	-1.00	1.00	1.00
Pfizer	2 weeks post-booster	Male	Age	Total IgG1 bisection	0.74	0.03	0.18
Pfizer	2 weeks post-booster	Male	Age	Total IgG1 fucosylation	-0.24	0.57	0.92
Pfizer	2 weeks post-booster	Male	Age	Total IgG1 galactosylation	-0.31	0.45	0.86
Pfizer	2 weeks post-booster	Male	Age	Total IgG1 sialylation	-0.10	0.82	1.00
RUMC/BN	2 weeks post-booster	Female	Age	Total IgG1 bisection	0.04	0.87	1.00
RUMC/BN	2 weeks post-booster	Female	Age	Total IgG1 fucosylation	-0.20	0.46	0.86
RUMC/BN	2 weeks post-booster	Female	Age	Total IgG1 galactosylation	-0.04	0.88	1.00
RUMC/BN	2 weeks post-booster	Female	Age	Total IgG1 sialylation	-0.14	0.60	0.96

RUMC/BN	2 weeks post-booster	Male	Age	Total IgG1 bisection	0.31	0.30	0.63
RUMC/BN	2 weeks post-booster	Male	Age	Total IgG1 fucosylation	0.18	0.55	0.92
RUMC/BN	2 weeks post-booster	Male	Age	Total IgG1 galactosylation	-0.20	0.51	0.91
RUMC/BN	2 weeks post-booster	Male	Age	Total IgG1 sialylation	0.11	0.73	1.00

Table S8. Correlations between age and anti-S IgG1 Fc glycosylation and levels in a sex stratified manner.
Spearman correlations are shown as per cohort, at seroconversion (Cohort) or 2 weeks post-booster (Cohort2). NA: not applicable.

Cohort	Timepoint	Sex	var1	var2	R_S	*p*-value	adjusted *p*-value
AstraZeneca	Seroconversion	Female	Age	Anti-S IgG1 bisection	-0.41	0.36	0.94
AstraZeneca	Seroconversion	Female	Age	Anti-S IgG1 fucosylation	0	1.00	1.00
AstraZeneca	Seroconversion	Female	Age	Anti-S IgG1 galactosylation	0.19	0.69	1.00
AstraZeneca	Seroconversion	Female	Age	Anti-S IgG1 sialylation	0.52	0.23	0.80
AstraZeneca	Seroconversion	Female	Age	ELISA Anti-S	0.19	0.69	1.00
AstraZeneca	Seroconversion	Male	Age	Anti-S IgG1 bisection	-1	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	Anti-S IgG1 fucosylation	1	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	Anti-S IgG1 galactosylation	-1	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	Anti-S IgG1 sialylation	1	1.00	1.00
AstraZeneca	Seroconversion	Male	Age	ELISA Anti-S	1	1.00	1.00
Janssen	Seroconversion	Female	Age	Anti-S IgG1 bisection	-0.23	0.35	0.94
Janssen	Seroconversion	Female	Age	Anti-S IgG1 fucosylation	-0.4	0.10	0.66
Janssen	Seroconversion	Female	Age	Anti-S IgG1 galactosylation	-0.46	0.06	0.56
Janssen	Seroconversion	Female	Age	Anti-S IgG1 sialylation	-0.32	0.20	0.77
Janssen	Seroconversion	Female	Age	ELISA Anti-S	-0.36	0.14	0.66
Janssen	Seroconversion	Male	Age	Anti-S IgG1 bisection	1.40E-04	1.00	1.00
Janssen	Seroconversion	Male	Age	Anti-S IgG1 fucosylation	-0.1	0.56	0.94
Janssen	Seroconversion	Male	Age	Anti-S IgG1 galactosylation	-0.1	0.56	0.94
Janssen	Seroconversion	Male	Age	Anti-S IgG1 sialylation	0.11	0.52	0.94
Janssen	Seroconversion	Male	Age	ELISA Anti-S	-0.22	0.21	0.77
Moderna	Seroconversion	Female	Age	Anti-S IgG1 bisection	0.1	0.87	1.00
Moderna	Seroconversion	Female	Age	Anti-S IgG1 fucosylation	-0.56	0.32	0.94
Moderna	Seroconversion	Female	Age	Anti-S IgG1 galactosylation	0.15	0.81	1.00
Moderna	Seroconversion	Female	Age	Anti-S IgG1 sialylation	-0.21	0.74	1.00
Moderna	Seroconversion	Female	Age	ELISA Anti-S	0.36	0.55	0.94
Pfizer	Seroconversion	Female	Age	Anti-S IgG1 bisection	-0.21	0.41	0.94
Pfizer	Seroconversion	Female	Age	Anti-S IgG1 fucosylation	-0.15	0.56	0.94
Pfizer	Seroconversion	Female	Age	Anti-S IgG1 galactosylation	0.1	0.70	1.00
Pfizer	Seroconversion	Female	Age	Anti-S IgG1 sialylation	0.18	0.49	0.94
Pfizer	Seroconversion	Female	Age	ELISA Anti-S	-0.54	0.02	0.41
Pfizer	Seroconversion	Male	Age	Anti-S IgG1 bisection	0.39	0.19	0.77
Pfizer	Seroconversion	Male	Age	Anti-S IgG1 fucosylation	0.38	0.20	0.77
Pfizer	Seroconversion	Male	Age	Anti-S IgG1 galactosylation	-0.28	0.35	0.94
Pfizer	Seroconversion	Male	Age	Anti-S IgG1 sialylation	-0.0055	0.99	1.00
Pfizer	Seroconversion	Male	Age	ELISA Anti-S	-0.64	0.02	0.36
RUMC/BN	Seroconversion	Female	Age	Anti-S IgG1 bisection	0.16	0.53	0.94
RUMC/BN	Seroconversion	Female	Age	Anti-S IgG1 fucosylation	-0.17	0.51	0.94
RUMC/BN	Seroconversion	Female	Age	Anti-S IgG1 galactosylation	-0.085	0.75	1.00
RUMC/BN	Seroconversion	Female	Age	Anti-S IgG1 sialylation	-0.16	0.55	0.94
RUMC/BN	Seroconversion	Female	Age	ELISA Anti-S	-0.087	0.74	1.00
RUMC/BN	Seroconversion	Male	Age	Anti-S IgG1 bisection	-0.19	0.52	0.94
RUMC/BN	Seroconversion	Male	Age	Anti-S IgG1 fucosylation	-0.33	0.24	0.81
RUMC/BN	Seroconversion	Male	Age	Anti-S IgG1 galactosylation	-0.07	0.81	1.00
RUMC/BN	Seroconversion	Male	Age	Anti-S IgG1 sialylation	0.062	0.83	1.00
RUMC/BN	Seroconversion	Male	Age	ELISA Anti-S	-0.24	0.41	0.94
AstraZeneca	2 weeks post-booster	Female	Age	Anti-S IgG1 bisection	-0.43	0.39	0.94
AstraZeneca	2 weeks post-booster	Female	Age	Anti-S IgG1 fucosylation	-0.75	0.08	0.61
AstraZeneca	2 weeks post-booster	Female	Age	Anti-S IgG1 galactosylation	0	1.00	1.00
AstraZeneca	2 weeks post-booster	Female	Age	Anti-S IgG1 sialylation	0.29	0.58	0.94
AstraZeneca	2 weeks post-booster	Female	Age	ELISA Anti-S	0.058	0.91	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Anti-S IgG1 bisection	-1	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Anti-S IgG1 fucosylation	-1	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Anti-S IgG1 galactosylation	1	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	Anti-S IgG1 sialylation	1	1.00	1.00
AstraZeneca	2 weeks post-booster	Male	Age	ELISA Anti-S	1	1.00	1.00
Janssen (1 dose)	2 weeks post-booster	Female	Age	Anti-S IgG1 bisection	-0.28	0.37	0.94
Janssen (1 dose)	2 weeks post-booster	Female	Age	Anti-S IgG1 fucosylation	-0.22	0.49	0.94
Janssen (1 dose)	2 weeks post-booster	Female	Age	Anti-S IgG1 galactosylation	-0.39	0.22	0.77
Janssen (1 dose)	2 weeks post-booster	Female	Age	Anti-S IgG1 sialylation	-0.29	0.36	0.94
Janssen (1 dose)	2 weeks post-booster	Female	Age	ELISA Anti-S	-0.49	0.11	0.66
Janssen (1 dose)	2 weeks post-booster	Male	Age	Anti-S IgG1 bisection	-0.13	0.57	0.94
Janssen (1 dose)	2 weeks post-booster	Male	Age	Anti-S IgG1 fucosylation	0.34	0.12	0.66
Janssen (1 dose)	2 weeks post-booster	Male	Age	Anti-S IgG1 galactosylation	0.018	0.94	1.00
Janssen (1 dose)	2 weeks post-booster	Male	Age	Anti-S IgG1 sialylation	0.0057	0.98	1.00
Janssen (1 dose)	2 weeks post-booster	Male	Age	ELISA Anti-S	-0.37	0.09	0.61
Janssen (2 doses)	2 weeks post-booster	Female	Age	Anti-S IgG1 bisection	-0.31	0.36	0.94
Janssen (2 doses)	2 weeks post-booster	Female	Age	Anti-S IgG1 fucosylation	0.6	0.06	0.56
Janssen (2 doses)	2 weeks post-booster	Female	Age	Anti-S IgG1 galactosylation	-0.57	0.07	0.61
Janssen (2 doses)	2 weeks post-booster	Female	Age	Anti-S IgG1 sialylation	-0.43	0.19	0.77
Janssen (2 doses)	2 weeks post-booster	Female	Age	ELISA Anti-S	-0.24	0.49	0.94
Janssen (2 doses)	2 weeks post-booster	Male	Age	Anti-S IgG1 bisection	0.12	0.56	0.94
Janssen (2 doses)	2 weeks post-booster	Male	Age	Anti-S IgG1 fucosylation	0.14	0.49	0.94
Janssen (2 doses)	2 weeks post-booster	Male	Age	Anti-S IgG1 galactosylation	-0.25	0.20	0.77
Janssen (2 doses)	2 weeks post-booster	Male	Age	Anti-S IgG1 sialylation	-0.3	0.12	0.66
Janssen (2 doses)	2 weeks post-booster	Male	Age	ELISA Anti-S	-0.34	0.09	0.61
Moderna	2 weeks post-booster	Female	Age	Anti-S IgG1 bisection	0.15	0.81	1.00
Moderna	2 weeks post-booster	Female	Age	Anti-S IgG1 fucosylation	-0.46	0.43	0.94

Moderna	2 weeks post-booster	Female	Age	Anti-S IgG1 galactosylation	-0.15	0.81	1.00
Moderna	2 weeks post-booster	Female	Age	Anti-S IgG1 sialylation	-0.56	0.32	0.94
Moderna	2 weeks post-booster	Female	Age	ELISA Anti-S	0.62	0.27	0.87
Pfizer	2 weeks post-booster	Female	Age	Anti-S IgG1 bisection	-1	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	Anti-S IgG1 fucosylation	-1	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	Anti-S IgG1 galactosylation	-1	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	Anti-S IgG1 sialylation	-1	1.00	1.00
Pfizer	2 weeks post-booster	Female	Age	ELISA Anti-S	-1	1.00	1.00
Pfizer	2 weeks post-booster	Male	Age	Anti-S IgG1 bisection	0.54	0.17	0.77
Pfizer	2 weeks post-booster	Male	Age	Anti-S IgG1 fucosylation	-0.3	0.47	0.94
Pfizer	2 weeks post-booster	Male	Age	Anti-S IgG1 galactosylation	-0.34	0.42	0.94
Pfizer	2 weeks post-booster	Male	Age	Anti-S IgG1 sialylation	-0.29	0.49	0.94
Pfizer	2 weeks post-booster	Male	Age	ELISA Anti-S	-0.18	0.67	1.00
RUMC/BN	2 weeks post-booster	Female	Age	Anti-S IgG1 bisection	0.19	0.48	0.94
RUMC/BN	2 weeks post-booster	Female	Age	Anti-S IgG1 fucosylation	0.038	0.89	1.00
RUMC/BN	2 weeks post-booster	Female	Age	Anti-S IgG1 galactosylation	-0.43	0.08	0.61
RUMC/BN	2 weeks post-booster	Female	Age	Anti-S IgG1 sialylation	-0.38	0.13	0.66
RUMC/BN	2 weeks post-booster	Female	Age	ELISA Anti-S	-0.011	0.97	1.00
RUMC/BN	2 weeks post-booster	Male	Age	Anti-S IgG1 bisection	-0.017	0.96	1.00
RUMC/BN	2 weeks post-booster	Male	Age	Anti-S IgG1 fucosylation	-0.0083	0.98	1.00
RUMC/BN	2 weeks post-booster	Male	Age	Anti-S IgG1 galactosylation	-0.46	0.11	0.66
RUMC/BN	2 weeks post-booster	Male	Age	Anti-S IgG1 sialylation	-0.56	0.05	0.56
RUMC/BN	2 weeks post-booster	Male	Age	ELISA Anti-S	0.14	0.65	1.00

Table S9. IgG1 glycopeptides included in the final analyte list.

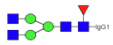
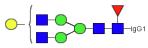
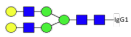
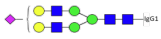
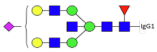
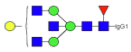
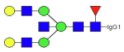
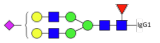
Glycan composition	Alternative nomenclature	$[M+2H]^{2+}$	$[M+3H]^{3+}$	Proposed structure
H3N4F1	G0F	1317.527	878.687	
H4N4	G1	1325.524	884.018	
H4N4F1	G1F	1398.553	932.704	
H5N4	G2	1406.550	938.036	
H5N4F1	G2F	1479.579	986.722	
H5N4S1	G2S	1552.098155	1035.068	
H5N5F1S1	G2FNS	1726.667	1151.447	
H5N4F1S2	G2FS2	1770.675	1180.786	
H4N5F1	G1FN	1000.398	1500.093	
H4N4F1S1	G1FS	1029.736224	1544.101	
H5N5F1	G2FN	1054.415	1581.119	
H5N4F1S1	G2FS	1083.753832	1625.127	

Table S10. Description and calculation of IgG1 glycosylation traits. H: hexose, N: *N*-acetylhexosamine, F: fucose, S: *N*-acetylneuraminic (sialic) acid.

	Description	Formula
IgG1 bisection	*N*-glycans carrying a bisected *N*-acetylglucoseamine	(H5N5F1S1 + H4N5F1 + H5N5F1) / sum of all IgG1 glycopeptides
IgG1 galactosylation	*N*-glycans carrying galactose(s)	(1/2 * (H4N4 + H4N4F1 + H4N5F1 + H4N4F1S1) + 2/2 * (H5N4 + H5N4F1 + H5N4S1 + H5N5F1S1 + H5N4F1S2 + H5N5F1 + H5N4F1S1)) / sum of all glycopeptides
IgG1 sialylation	*N*-glycans carrying *N*-acetylneuraminic (sialic) acid(s)	(1/2 * (H5N4S1 + H5N5F1S1 + H4N4F1S1) + 2/2 * H5N4F1S2) / sum of all IgG1 glycopeptides
IgG1 fucosylation	*N*-glycans carrying a core fucose	(H3N4F1 + H4N4F1 + H5N4F1 + H5N5F1S1 + H5N4F1S2 + H4N5F1 + H4N4F1S1 + H5N5F1S1 + H5N4F1S1) / sum of all IgG1 glycopeptides