

Table S1. Study group

Study Group	First name	Last Name	Titel	Position	Department	Research institute	Location
UMC COVID-19 S3/HCW study group	Brent	Appelman	Dhr, MD	Arts-onderzoeker	Center for Experimental and Molecular Medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Diederik	Beek van de	Dhr, MD PhD	Neuroloog	Neurologie	Amsterdam Neuroscience	AMC
UMC COVID-19 S3/HCW study group	Marije K	Bomers	Mw, MD PhD	Internist-infectioloog	Interne Geneeskunde	Amsterdam Infection & Immunity	VUmc
UMC COVID-19 S3/HCW study group	Justin	Brabander de	Dhr, MD	Arts-onderzoeker	Center for Experimental and Molecular Medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Matthijs C	Brouwer	Dhr, MD PhD	Neuroloog	Neurologie	Amsterdam Neuroscience	AMC
UMC COVID-19 S3/HCW study group	David TP	Buis	Dhr, MD	Arts-onderzoeker	Interne Geneeskunde	Amsterdam Infection & Immunity	VUmc
UMC COVID-19 S3/HCW study group	Nora	Chekrouni	Mw, MD	Arts-onderzoeker	Neurologie	Amsterdam Neuroscience	AMC
UMC COVID-19 S3/HCW study group	Marit J	Gils van	Mw, PhD	Associate professor	Medical Microbiology & Infection prevention	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Menno D	Jong de	Dhr, MD PhD	Prof clinical virology	Medical Microbiology & Infection prevention	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Ayesha HA	Lavell	Mw, MD	Arts-assistent	Interne Geneeskunde	Amsterdam Infection & Immunity	VUmc
UMC COVID-19 S3/HCW study group	Niels	Mourik van	Dhr, MD	Arts-onderzoeker	intensive care medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Sabine E	Olie	Mw, MD	Arts-onderzoeker	Neurologie	Amsterdam Neuroscience	AMC
UMC COVID-19 S3/HCW study group	Edgar JG	Peters	Dhr, MD PhD	Internist-infectioloog	Interne Geneeskunde	Amsterdam Infection & Immunity	VUmc
UMC COVID-19 S3/HCW study group	Tom DY	Reijnders	Dhr, MD	Arts-onderzoeker	Center for Experimental and Molecular Medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Michiel	Schinkel	Dhr, MD	Arts-onderzoeker	Center for Experimental and Molecular Medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Alex R	Schuuman	Dhr, MD	Arts-onderzoeker	Center for Experimental and Molecular Medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Jonne J	Sikkens	Dhr, MD PhD	Arts-assistent arts-onderzoeker post-doc	Interne Geneeskunde	Amsterdam Infection & Immunity	VUmc
UMC COVID-19 S3/HCW study group	Marleen A	Slim	Mw, MD	Arts-onderzoeker	Intensive care medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Yvo M	Smulders	Dhr, MD PhD	Prof internal medicine	Interne Geneeskunde		VUmc
UMC COVID-19 S3/HCW study group	Alexander PJ	Vlaar	Dhr, MD PhD	intensivist	Intensive care medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group	Lonneke A	Vught van	Mw, MD PhD	Post doctoraal onderzoeker	Intensive care medicine	Amsterdam Infection & Immunity	AMC
UMC COVID-19 S3/HCW study group					Center for Experimental and Molecular Medicine		
UMC COVID-19 S3/HCW study group	W Joost	Wiersinga	Dhr, MD PhD	Internist-infectioloog	Interne Geneeskunde	Amsterdam Infection & Immunity	AMC
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Spinello	Antinori	Prof		Department of Clinical Sciences, Fatebenefratelli III Division of Infectious Diseases	III Division of Infectious Diseases	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Cinzia	Bassoli	Dr		Department of Clinical Sciences, Fatebenefratelli III Division of Infectious Diseases	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Giovanna	Bestetti	Dr		III Division of Infectious Diseases	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Mario	Corbellino	Dr		III Division of Infectious Diseases	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Alice	Covizzi	Dr		Department of Clinical Sciences	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Angelica	Lupo	Dr		III Division of Infectious Diseases	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Laura	Milazzo	Dr		III Division of Infectious Diseases	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Marco	Schiama	Dr		Department of Clinical Sciences	Fatebenefratelli – Sacco Hospital, Milan, Italy	
Fatebenefratelli-Sacco Infectious Diseases Physicians group	Alessandro	Torre	Dr		III Division of Infectious Diseases	Fatebenefratelli – Sacco Hospital, Milan, Italy	

Table S2. Detailed description of Cohort 1 - Amsterdam UMC cohort

Participant	Age (yrs)	Sex	Antigen experienced	Days between positive PCR and 1st dose	Days between Vaccinations	Serum-Analysis: Days upon 1st (2nd) vaccination	Included in IL-6 study
1203	40	f	Yes		21	0, 10, 14, 21(0), 25(4), 29(8), 31(10), 42(21), 49(29)	Yes
1182	49	f			21	1, 7, 14, 26(5), 28(7), 30(9), 35(14), 42(21), 49(28)	
1561	26	f			23	1, 6, 8, 12, 14, 23(0), 26(3), 30(7), 44(21), 51(28)	Yes
1679	23	f			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)	Yes
1897	27	f			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)	Yes
1602	36	f	Yes	64	21	0, 2, 9, 13, 21(0), 23(2), 28(7), 34(13), 49(28)	Yes
1264	62	m			21	0, 3, 7, 10, 11, 14, 21(0), 24(3), 29(8), 31(10), 36(15), 49(28)	Yes
1476	51	f			21	0, 4, 7, 11, 15, 21(0), 25(4), 28(7), 33(12), 36(15), 43(22), 49(28)	Yes
1507	60	f			21	1, 5, 7, 9, 14, 21(0), 28(7), 30(9), 35(14), 42(21), 49(28)	Yes
1946	59	m			22	-4, 2, 7, 10, 14, 21, 24(2), 30(8), 38(16), 44(22), 49(27)	Yes
1950	37	f			21	1, 5, 7, 14, 21(0), 23(2), 27(6), 36(15), 42(21), 49(28)	
1540	43	f			22	1, 7, 9, 14, 22(0), 26(4), 28(6), 34(12), 37(15), 50(28)	Yes
1130	34	m			22	1, 5, 7, 14, 22(0), 26(4), 29(7), 33(11), 36(14), 44(22), 50(28)	
1109	57	m			21	1, 7, 9, 14, 21(0), 26 (5), 29(8), 35 (14), 42(21), 50(29)	Yes
1073	30	f	Yes	57	23	1, 8, 13, 23 (0), 30(7), 36(13), 49(26)	
1169	44	f			24	3, 7, 10, 14, 21, 27(3), 31(7), 34(10), 38(14), 49(25)	Yes
1949	38	f			21	0, 3, 7, 13, 21(0), 24(3), 28(7), 31(10), 35(14), 49(28)	
1317	39	f			21	0, 3, 7, 11, 21(0)	
1291	29	m			21	0, 5, 8, 13, 15, 21(0), 27(6), 32(11), 48(27)	Yes
1992	61	f			22	0, 4, 5, 8, 11, 15, 22(0), 25(3), 29(7), 32(10), 41(19), 49(27)	Yes
1725	43	f			21	0, 4, 7, 14, 21(0), 25(4), 29(8), 34(13), 42(21), 49(28)	
1219	25	f			21	1, 5, 7, 9, 21(0), 23(2), 28(7), 30(9), 35(14), 42(21), 49(28)	
1987	30	f			21	1, 5, 7, 14, 21(0), 26(5), 28(7), 30(9), 35(14), 42(21), 49(28)	
1361	51	f			21	0, 4, 6, 11, 14, 21(0), 25(4), 32(11), 36(15), 42(21), 49(28)	
1844	57	m			21	0, 4, 7, 12, 14, 21(0), 26(5), 29(8), 35(14), 49(28)	Yes
1321	27	m			22	0, 8, 11, 15, 22(0), 29(7), 32(10), 43(21), 49(28)	Yes
1122	64	f			21	1, 5, 8, 12, 14, 21(0), 23(2), 28 (7), 30 (9), 36(15), 42(21), 50(29)	Yes
1750	59	f			22	1, 7, 14, 22(0), 26(4), 33(11), 35(13), 50(28)	
1338	47	f			21	1, 6, 11, 13, 21(0), 25(4), 27(6), 33(12), 42(21), 49(28)	Yes

1857	36	f			22	0, 12, 22(0), 25(3), 36(14), 49(27)	
1249	46	m			21	1, 5, 7, 9, 14, 21(0), 26(5), 28(7), 30(9), 35(14), 50(29)	Yes
1473	44	m			22	0, 6, 13, 22(0), 29(7), 36(14), 49(27)	
1485	39	m			21	1, 5, 9, 13, 21(0), 23(2), 27(6), 42(21), 48(27)	Yes
1738	40	m			21	0, 3, 5, 10, 14, 21(9), 24(3), 26(5), 32(11), 34(13), 42(21), 49(28)	Yes
1757	33	f	Yes	288	20	0, 4, 7, 11, 14, 20(0), 22(2), 35(15), 49(27)	Yes
1902	34	m			22	0, 4, 11, 15, 22(0), 35(13), 41(19), 49(27)	
1953	46	f			21	0, 4, 6, 10, 14, 19, 24(3), 27(6), 32(11), 35(14), 42(21), 49(28)	Yes

Table S3. Detailed description of Cohort 2 - Fatebenefratelli-Sacco Infectious Diseases Physicians Group

Participant	Age (yrs)	Sex	Days between first and second dose	BMI	Cormobidities	Medications	Serum-Analysis: Days upon 1st (2nd) dose
VC-001	58	M	21	26	None	None	0, 3, 7, 11, 14, 17, 21(0), 24(3), 28(7), 32(11), 35(14), 39(18), 42(21)
SCM	28	M	21	21	None	None	0, 4, 8, 11, 15, 18, 21(0), 25(4), 29(8), 31(10), 36(15), 39(18), 42(21)
TOA	35	M	21	23	None	None	-1, 3, 7, 10, 14, 17, 20, 24(3), 28(7), 30(9), 35(14), 38(17), 41(20)
ANSP	62	M	21	24	Hypertension Hereditary spherocytosis splenectomy	Olmesartan Esomeprazole	0, 4, 8, 11, 15, 18, 22(1), 25(4), 29(8), 32(11), 35(14), 43(22), 45(24)
COA	28	F	21	21	None	None	-1, 3, 6, 10, 13, 17, 20, 24(3), 27(6), 31(10), 34(13), 38(17), 41(20)
BAC	29	F	21	19	None	None	-1, 3, 6, 10, 13, 17, 20, 25(4), 27(6), 31(10), 34(13), 38(17), 41(20)
LUAN	59	F	21	31	Hypertension	Ramipril	0, 4, 8, 11, 15, 18, 22(1), 25(4), 32(11), 34(13), 36(15), 39(18), 43(22)
MIL	53	F	21	19	Breast Cancer	Aromasin	-1, 2, 6, 9, 13, 16, 20, 23(2), 27(6), 30(9), 34(13), 37(16), 41(20)
BEGI	55	F	21	29	None	None	0, 3, 7, 10, 14, 17, 21, 24(3), 28(7), 31(10), 35(14), 38(17), 42(21)

Table S4. Detailed description of Cohort 3 - Luebeck cohort

Participant	Individual numbers Lixenfeld <i>et al.</i>	Age (yr)	Sex	Ag- experienced	Days between PCR-positive/ symptoms and 1st vaccination	Controls	Vaccine	Days between vaccinations	Serum Analysis: Days upon 1st (2nd) vaccination	Serum and Blood Cell Analysis: Days upon 1st (2nd) vaccination
1	1	37	m				BioNTech/Pfizer	35	-2, 22, 40 (5), 70 (35)	
2	2	30	f				BioNTech/Pfizer	35	0, 24, 41 (6), 65 (30)	
3	3	43	f				BioNTech/Pfizer	35	0, 23, 31, 41 (5), 64 (28)	
4	4	29	f				BioNTech/Pfizer	35	0, 23, 42 (7), 64 (29)	
5	5	32	f				BioNTech/Pfizer	35	0, 23, 41 (6), 64 (29)	
6	6	28	f				BioNTech/Pfizer	35	0, 31, 41 (6), 64 (29)	
7	7	34	f				BioNTech/Pfizer	35	0, 31, 42 (7)	
8	8	29	m				BioNTech/Pfizer	35	0, 24, 41 (6), 64 (29)	
10	10	33	m				BioNTech/Pfizer	35	0, 23, 41 (6), 64 (29)	
12	12	25	f				BioNTech/Pfizer	35	0, 41 (6), 63 (28)	
13	13	42	m				BioNTech/Pfizer	35	0, 23, 41 (6), 63 (28)	
14	14	31	m				BioNTech/Pfizer	35	0, 23, 40 (5), 64 (29)	
15	15	30	m				BioNTech/Pfizer	35	0, 23, 43 (8), 64 (29)	
16	16	52	m				BioNTech/Pfizer	35	0, 30, 41 (6), 63 (28)	
17	17	26	f				BioNTech/Pfizer		4, 14, 21	
18	18	26	f				BioNTech/Pfizer	34	9, 17, 24, 37 (3), 50 (16)	
19	19	30	f				BioNTech/Pfizer		6, 12	
20	20	22	f			x	no			
21	21	29	m	yes	305		BioNTech/Pfizer	35	-2, 22, 29, 40 (5), 62 (27)	40 (5)
22	22	29	f	yes	290		BioNTech/Pfizer	35	0, 22, 30, 40 (5), 63 (28)	40 (5)
51		46	m				BioNTech/Pfizer			13
52		44	f				BioNTech/Pfizer			13
53		37	m				BioNTech/Pfizer			13
54		33	f				BioNTech/Pfizer			10, 14
55		23	f				BioNTech/Pfizer			11
56		19	m				BioNTech/Pfizer			10
57		40	f	yes	173		BioNTech/Pfizer			10
58		56	m	yes	194		BioNTech/Pfizer			9
59		52	f	yes	165		BioNTech/Pfizer	35		40 (5)
60		69	m	yes	158		BioNTech/Pfizer	32		40 (8)
61		74	f	yes	184		BioNTech/Pfizer			8

62		47	m	yes	178		BioNTech/Pfizer			7
63		39	f	yes	178		BioNTech/Pfizer			7
64		29	f			x	no			
65		28	m			x	no			
66		23	f			x	no			
67		21	f			x	no			
68		20	f			x	no			
69		33	m			x	no			
70		34	f			x	no			

Table S5. Detailed description of Cohort 4 - Convalescent plasma donors

Participant	Age (yrs)
70826	48
511828	56
553113	44
616886	49
632961	62
659201	41
1086369	53
1217364	49
1218801	59
1339188	47
1832436	30
1878273	28
1937124	27
1972705	51
2177185	25
2198851	60
2394658	35
2402217	45
2408917	57
2411367	59
2412091	19
2427249	25

Table S6. IgG1 glycopeptides included in the final analyte list



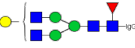


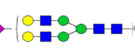






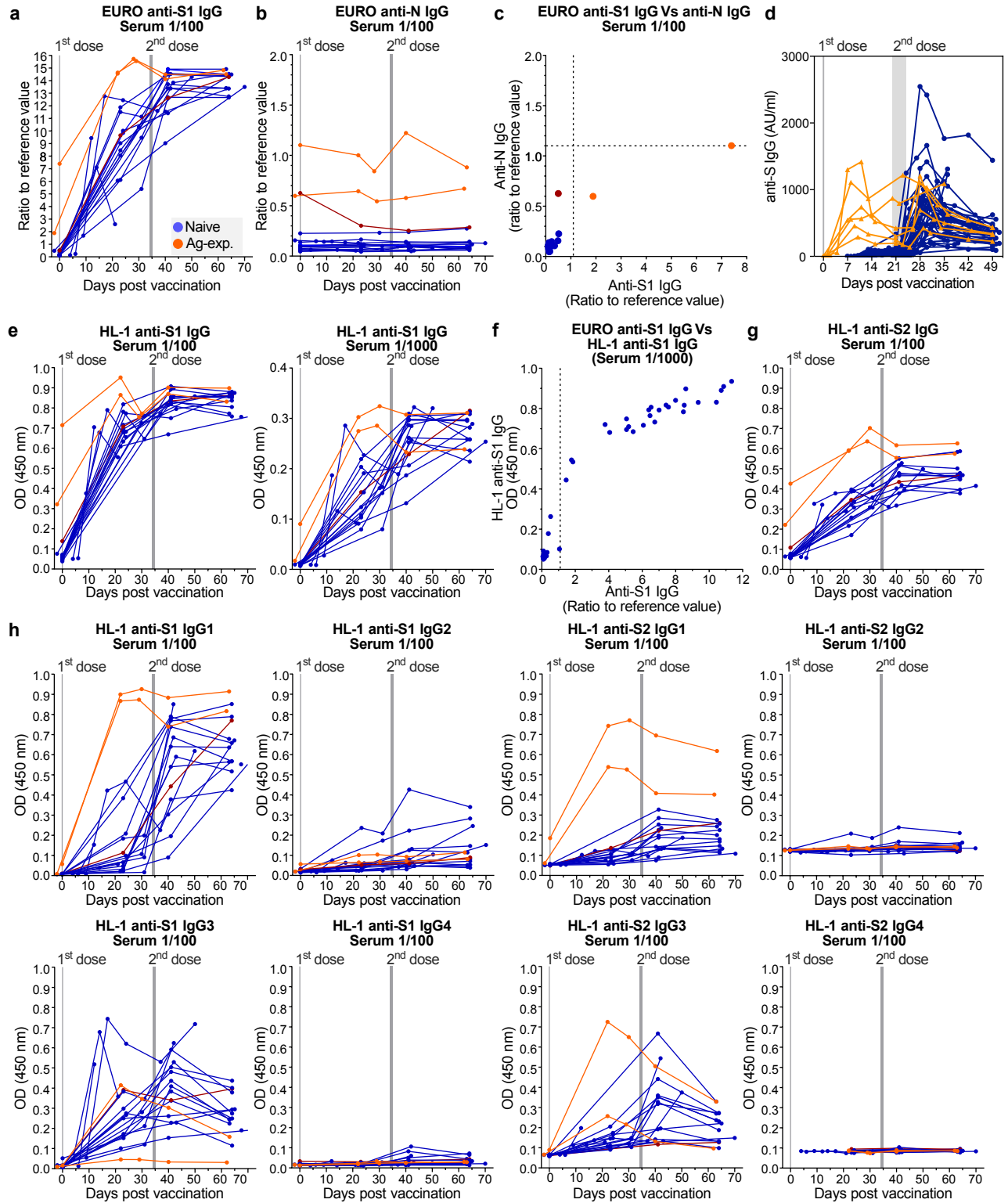
Glycan composition	Alternative nomenclature	[M+2H] ²⁺	[M+3H] ³⁺	Proposed structure
H3N4F1	G0F	1317.527	878.687	
H4N4	G1	1325.524	884.018	
H4N4F1	G1F	1398.553	932.704	
H5N4	G2	1406.550	938.036	
H5N4F1	G2F	1479.579	986.722	
H5N4S1	G2S	1552.098155	1035.068	
H5N5F1S1	G2FNS	1726.667	1151.447	
H5N4F1S2	G2FS2	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	

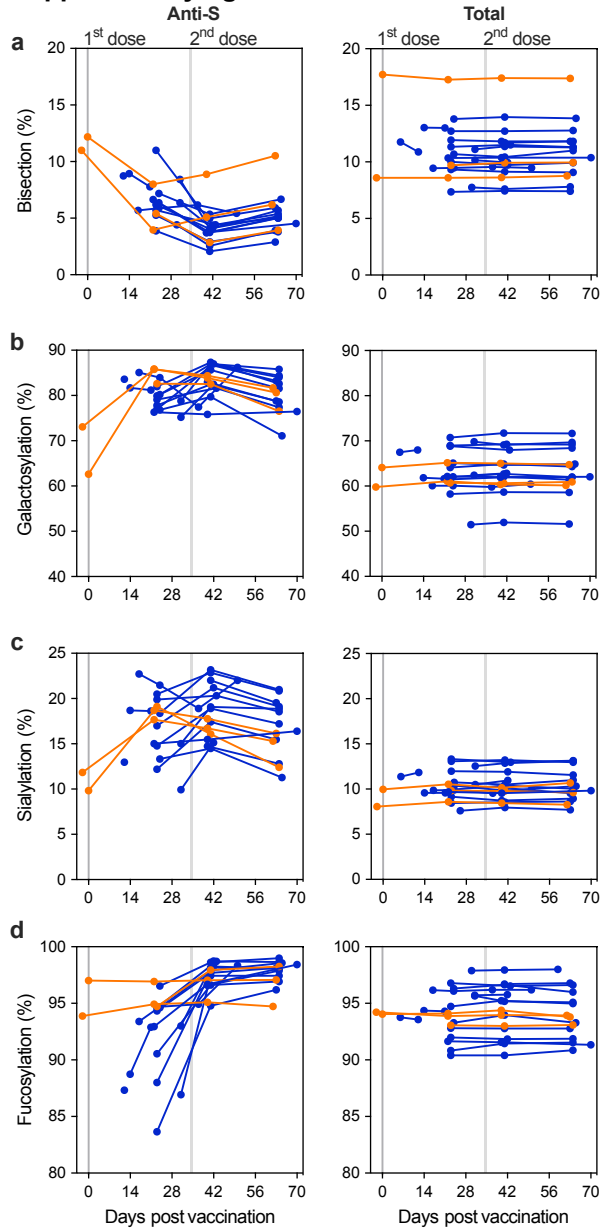
Table S7. Description and calculation of IgG1 glycosylation traits. H: hexose, N: N-acetylhexosamine, F: fucose, S: N-acetylneuraminic (sialic) acid

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

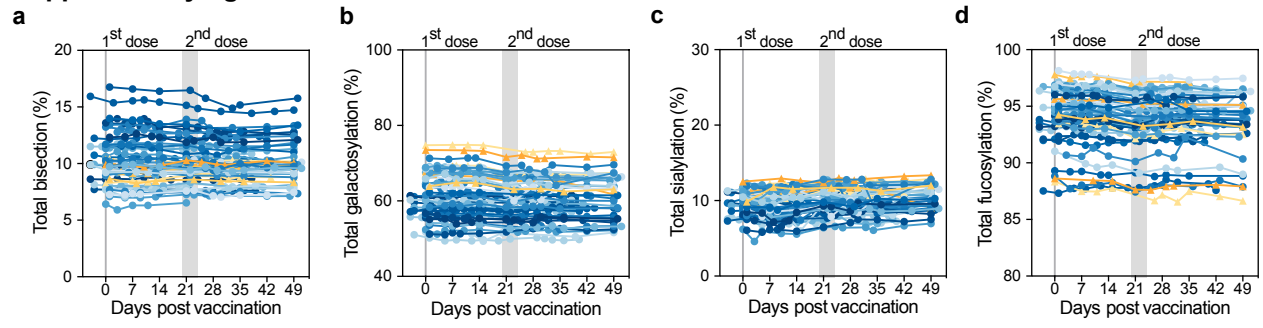
Supplementary figure 1



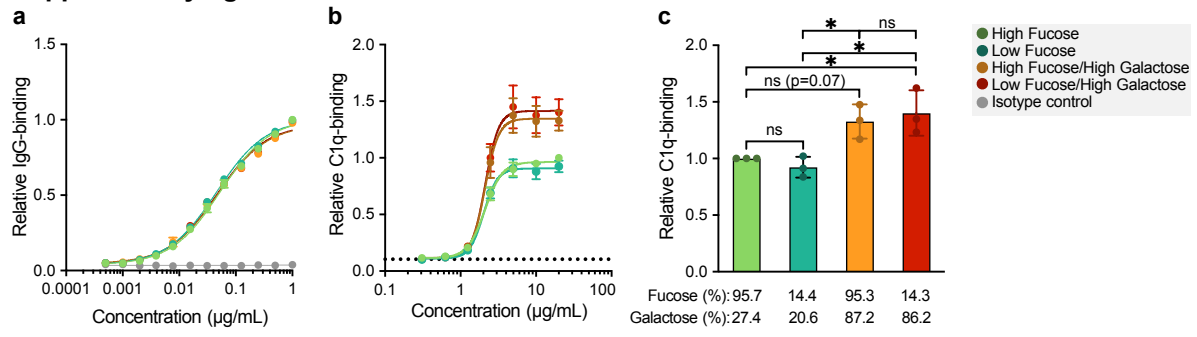
Supplementary figure 2



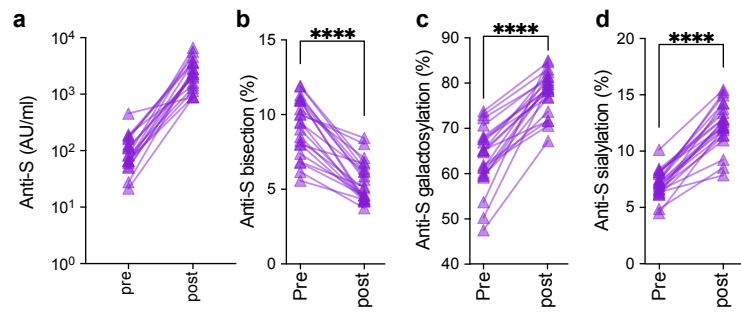
Supplementary figure 3



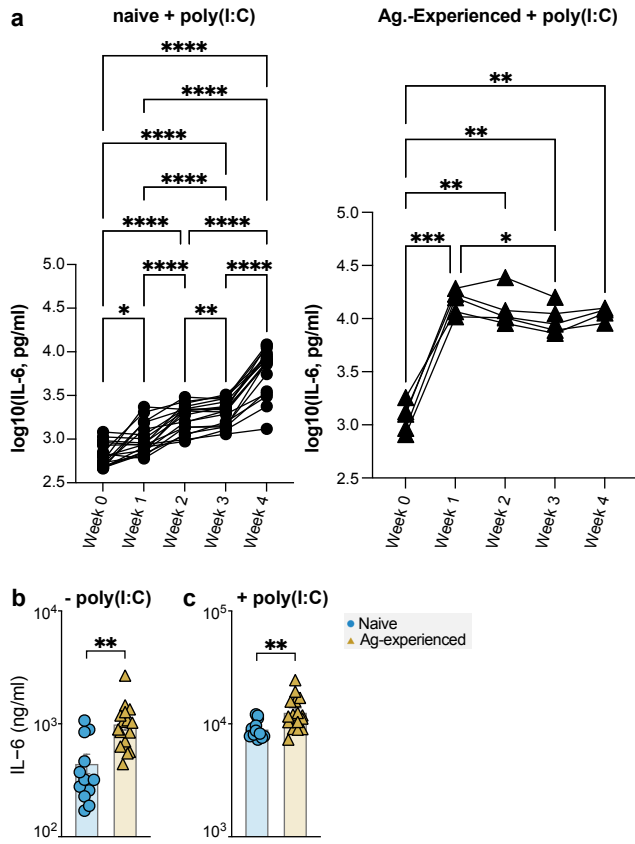
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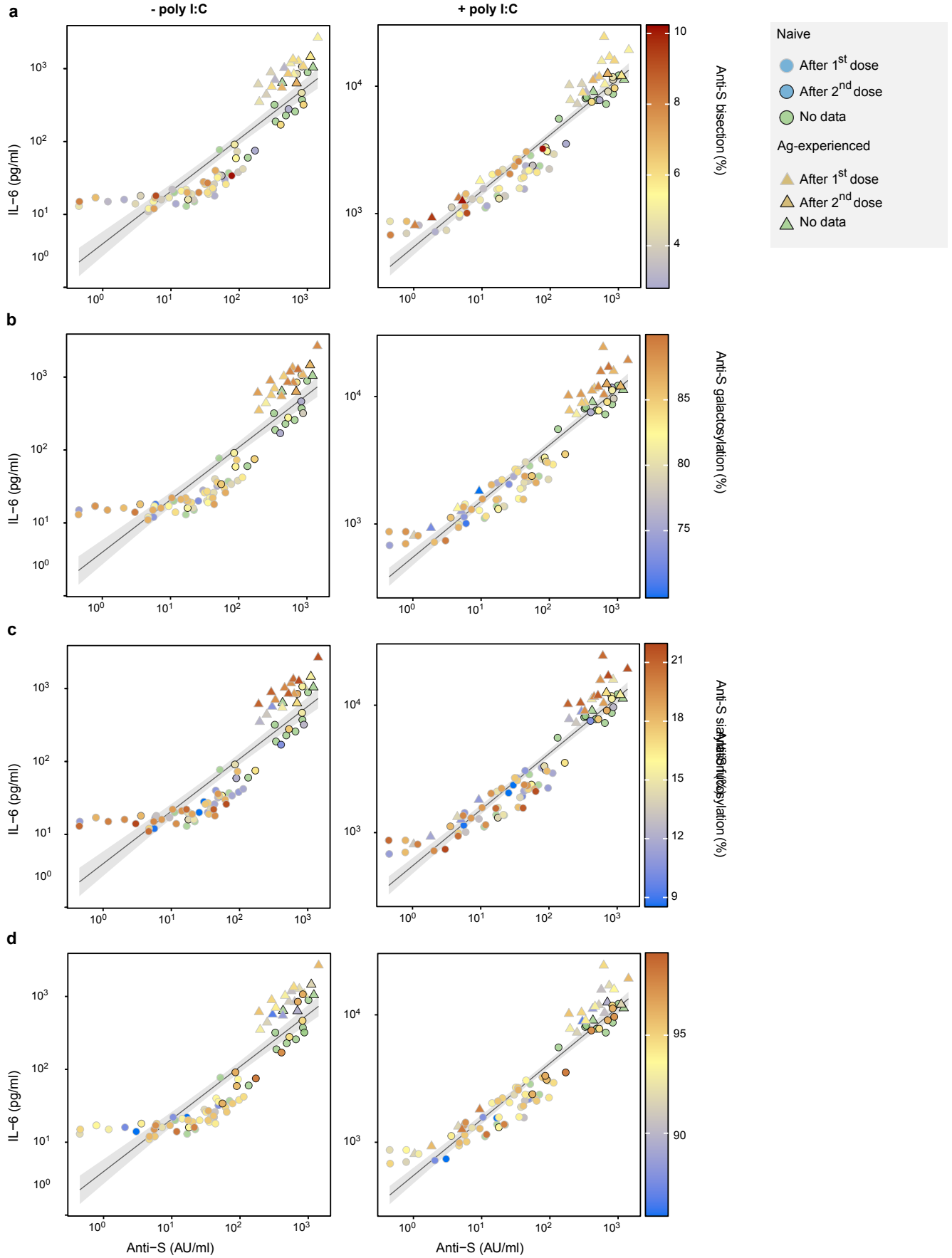
Supplementary figure 5



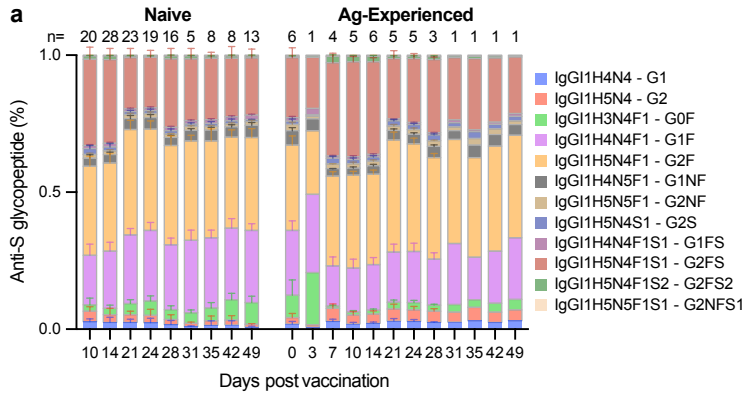
Supplementary figure 6



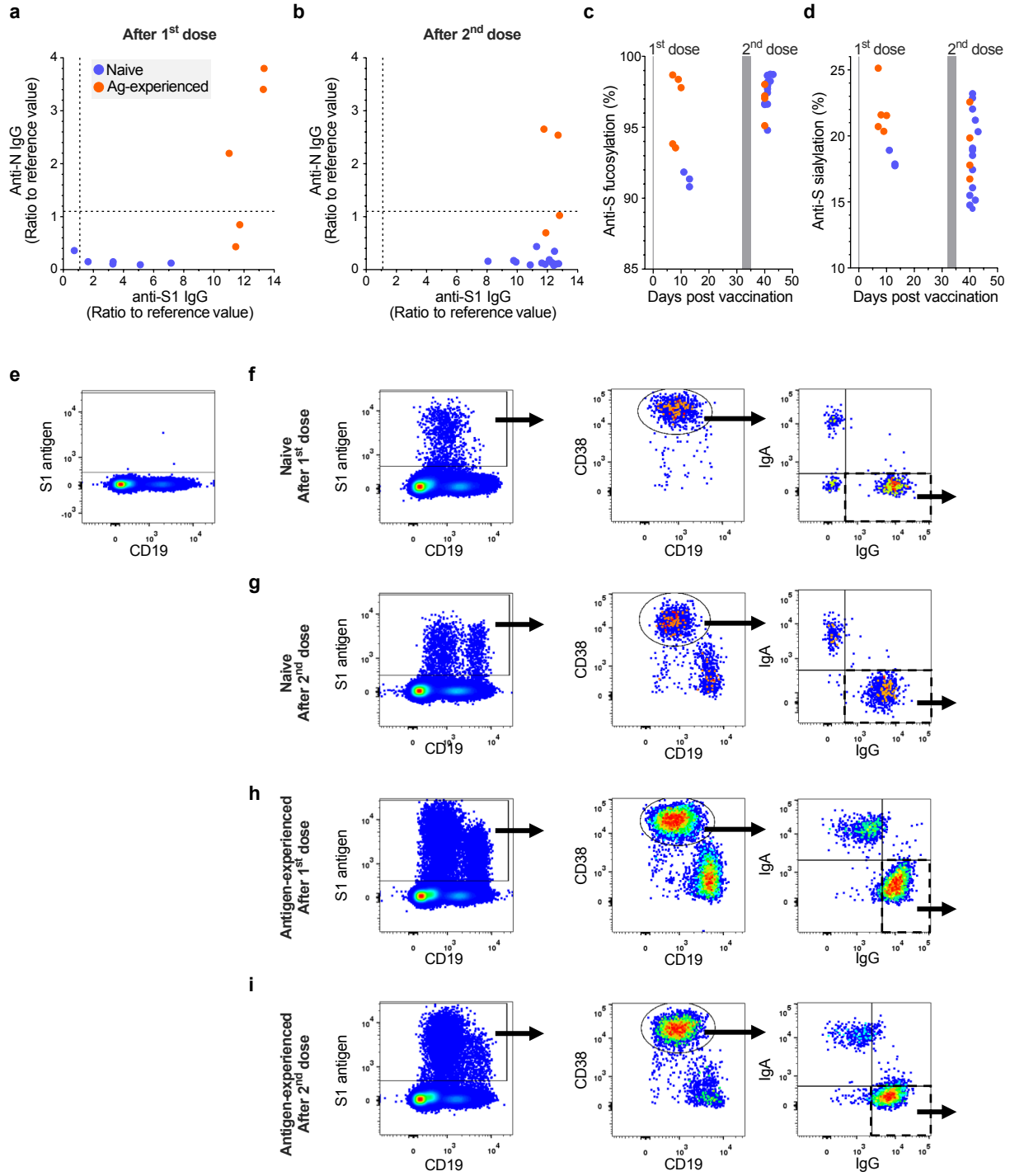
Supplementary figure 7



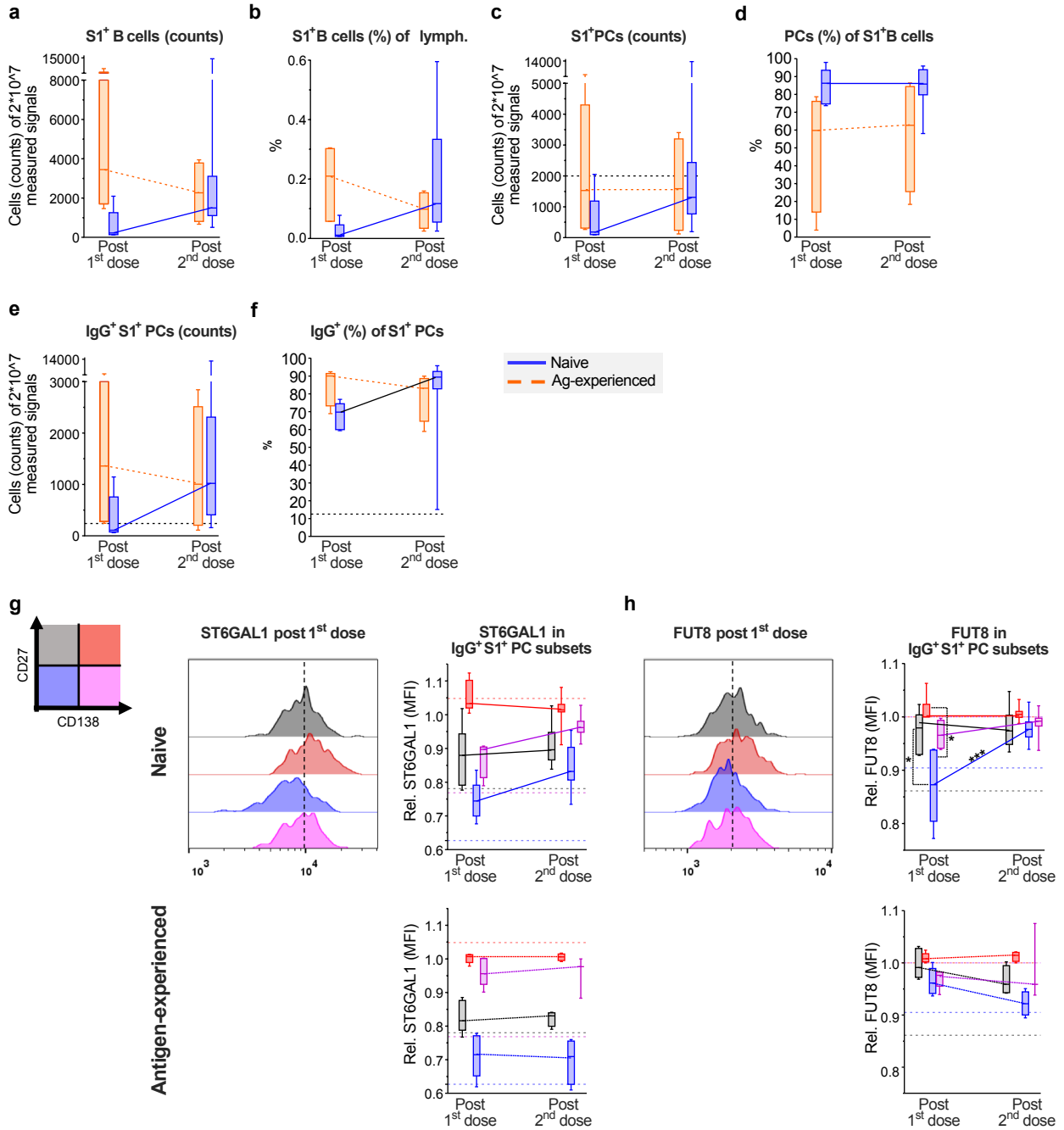
Supplementary figure 8



Supplementary figure 9

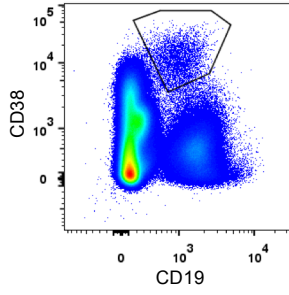


Supplementary figure 10

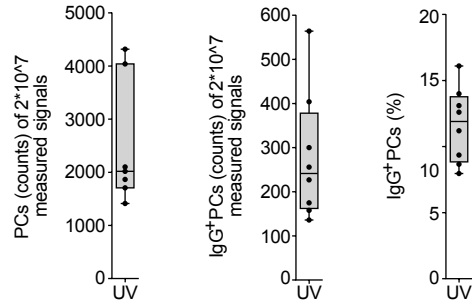


Supplementary figure 11

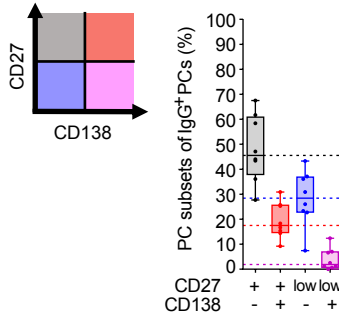
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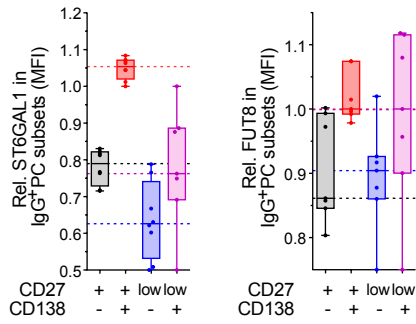
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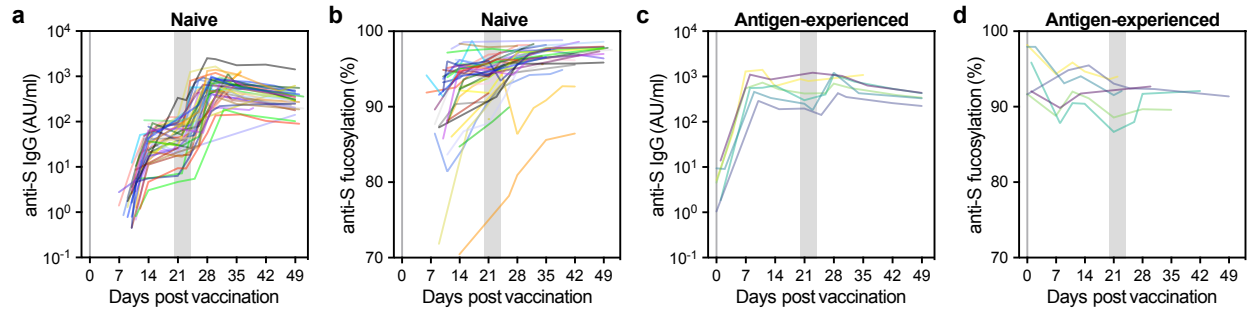
c



d



Supplementary figure 12



Supplementary figure 13

