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Supplemental information

High frequency of HIV precursor-target-specific B cells in sub-Saharan populations

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Supplementary Materials for

Increased frequency of HIV precursor-target specific B cells in sub-Saharan populations

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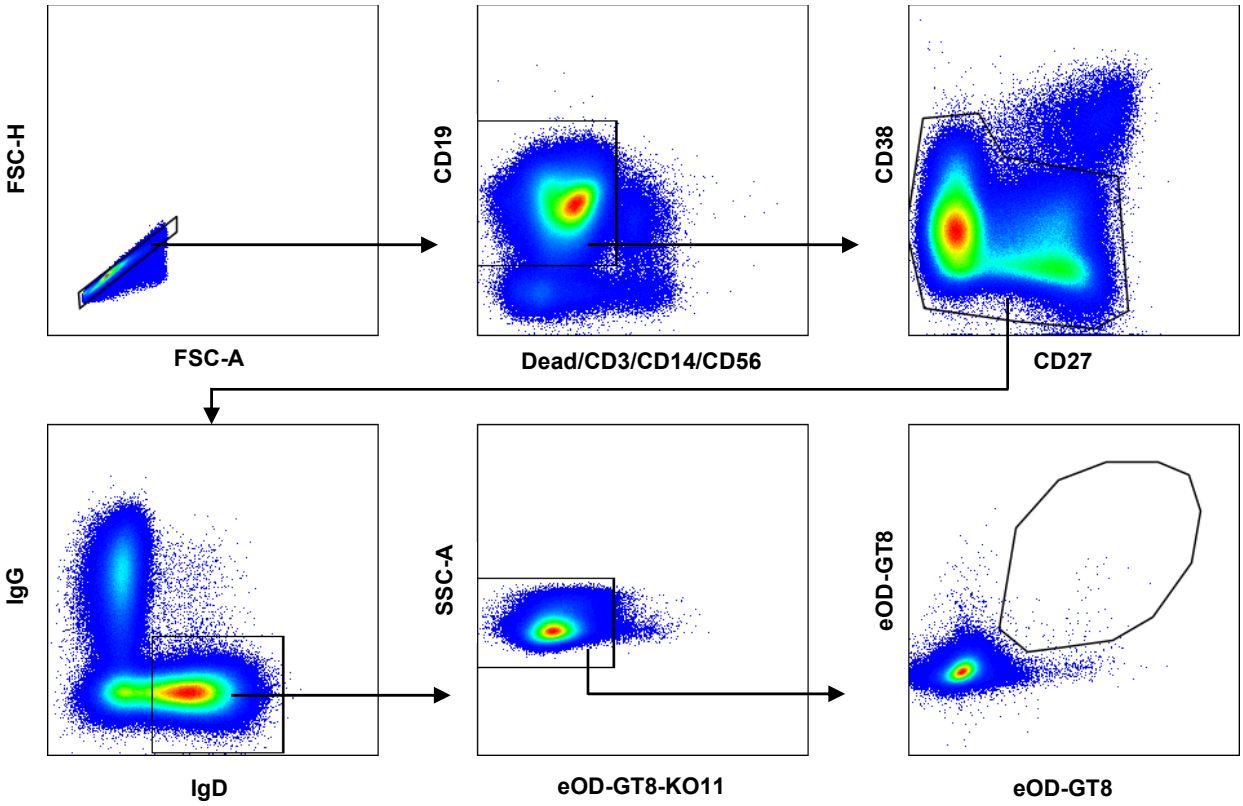


Fig. S1 – Gate schema used to identify and sort eOD-GT8+ naïve B cells. Cells that were CD19+ CD27+ CD38lo IgD+ eOD-GT8-KO11- and double positive for eOD-GT8 were considered eOD-GT8-specific naïve B cells and were single-cell sorted for sequencing.

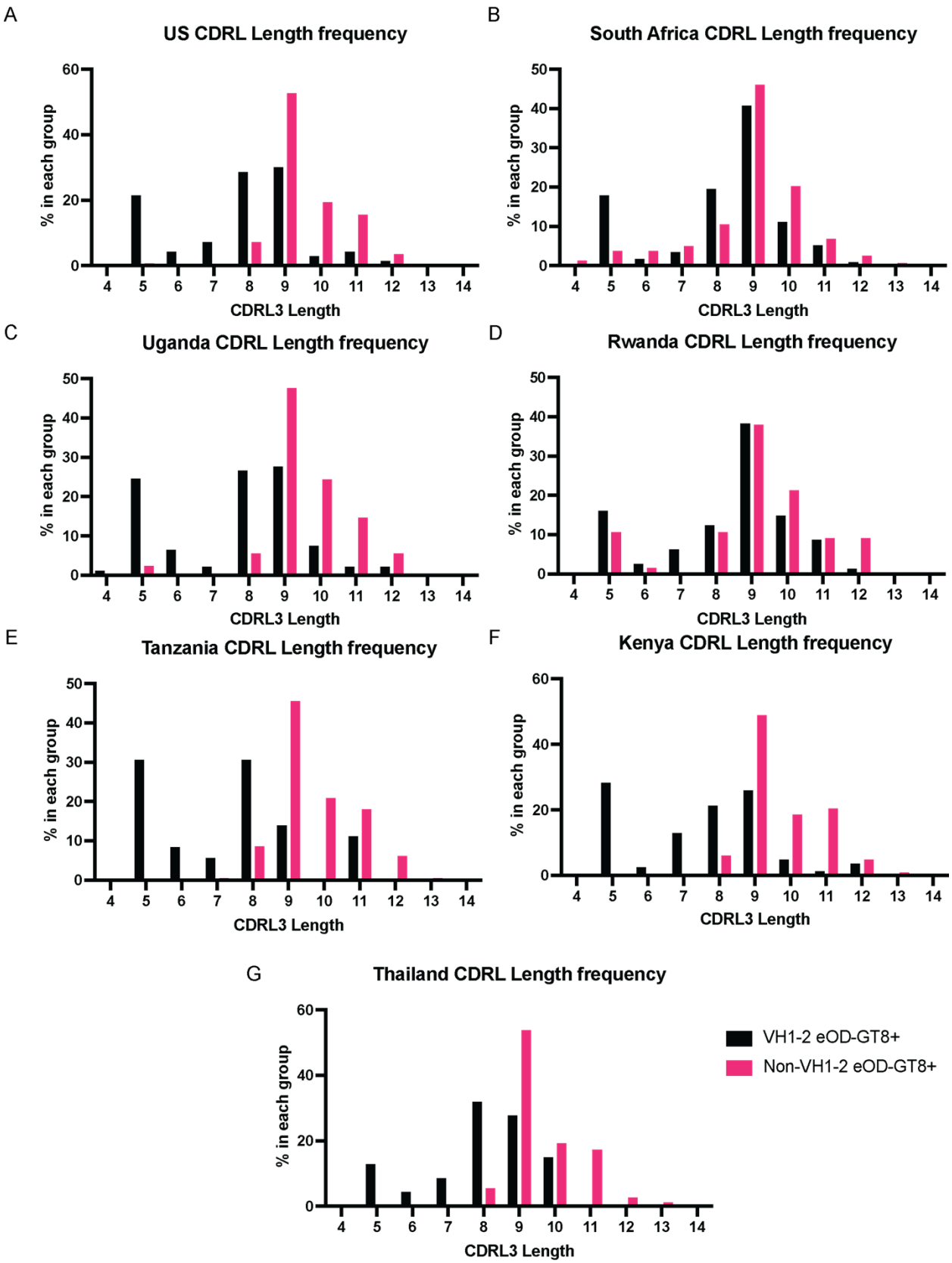
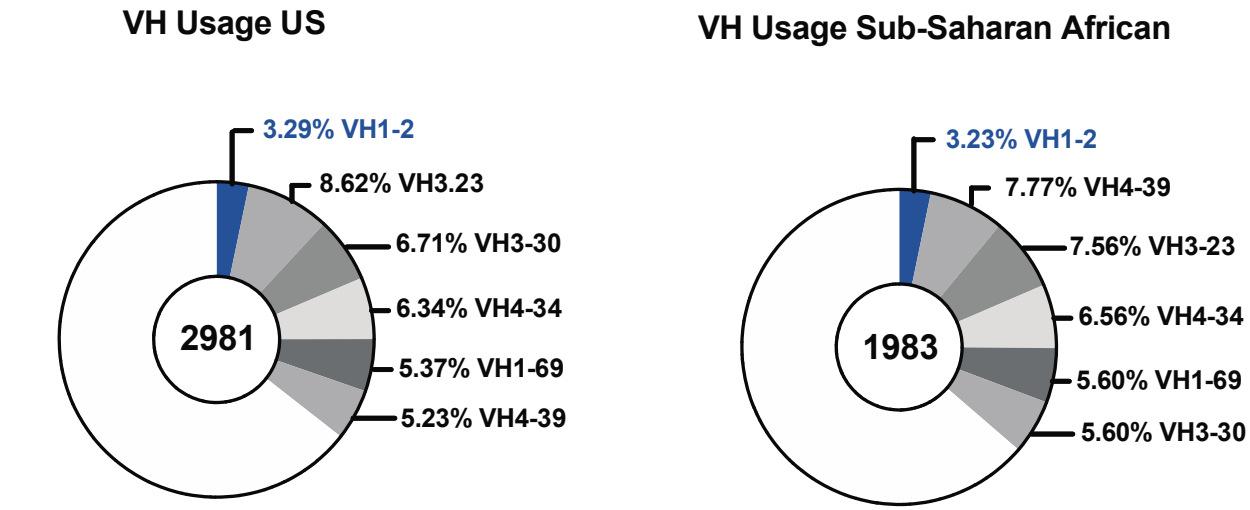

A
US CDRL Length frequency
% in each group
CDRL3 Length
B
South Africa CDRL Length frequency
% in each group
CDRL3 Length
C
Uganda CDRL Length frequency
% in each group
CDRL3 Length
D
Rwanda CDRL Length frequency
% in each group
CDRL3 Length
E
Tanzania CDRL Length frequency
% in each group
CDRL3 Length
F
Kenya CDRL Length frequency
% in each group
CDRL3 Length
G
Thailand CDRL Length frequency
% in each group
CDRL3 Length
VH1-2 eOD-GT8+
Non-VH1-2 eOD-GT8+

Fig. S2 – Enrichment of 5aa CDRL3 LCs when paired with VH1-2 HCs. (A-G) Frequency of eOD-GT8-specific naïve B cells CDRL3 length paired with a VH1-2 HC (Pink) or non-VH1-2 HC (Black) from US (A), South Africa (B), Uganda (C), Rwanda (D), Tanzania (E), Kenya (F) and Thailand (G).

A



B

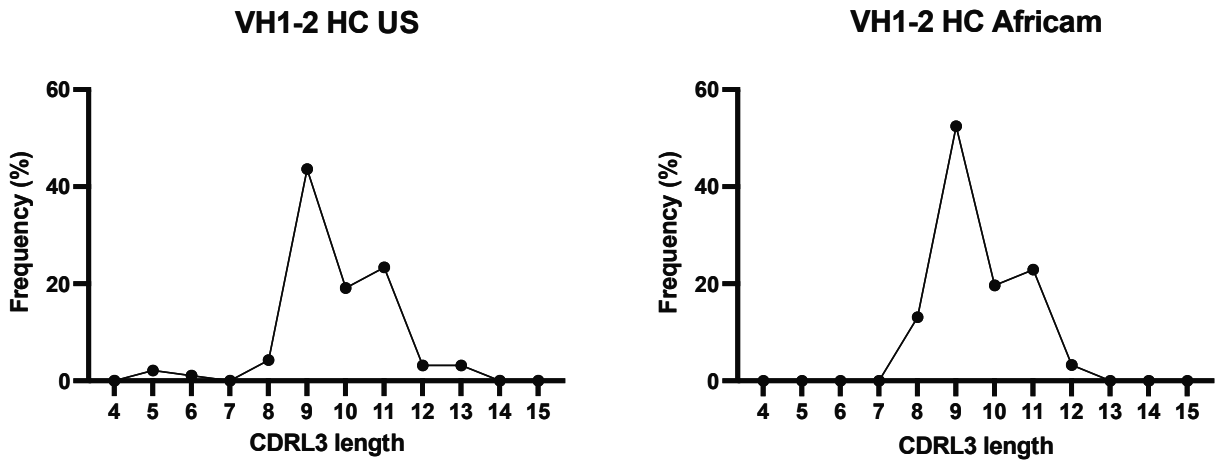


Fig. S3 – Common overall naïve Ig features among African and non-African cohorts. (A) Pie chart of VH usage among total naïve B cells from US and sub-Saharan African cohorts – the blue slice indicates the VH1-2 gene and grey shades indicate the other most frequent VH genes. Total B cell sequences are indicated at the center of each pie chart. (B) Frequency of sequences with a LC with the indicated CDRL3 length paired with a VH1-2 HC from US and sub-Saharan African cohorts shown in (A).

Country	Study ID	Total cells (Millions)	Age	Gender	Sequences analyzed
Uganda	10006	94	25	Female	35
Uganda	10059	82.4	36	Female	45
Uganda	10123	82.88	37	Female	62
Uganda	10176	82.4	19	Female	34
Uganda	10465	89.6	19	Female	61
Uganda	10470	82.4	29	Female	31
Uganda	10600	81.6	27	Female	23
Uganda	10694	62.4	27	Male	16
Uganda	10696	86.4	23	Male	20
Uganda	10703	71.4	24	Male	19
Uganda	10709	60.6	25	Male	16
Uganda	10714	82.4	23	Male	35
Kenya	20227	100	24	Female	19
Kenya	20420	84	18	Female	18
Kenya	20446	86.4	22	Female	25
Kenya	20459	86.4	19	Female	75
Kenya	20475	80	23	Female	23
Kenya	20476	80	22	Female	47
Kenya	20526	82.4	21	Female	111
Kenya	20695	80	26	Female	17
Kenya	20985	82.16	26	Female	85
Tanzania	30162	80	32	Female	9
Tanzania	30210	80	25	Female	9
Tanzania	30407	80	24	Female	42
Tanzania	30567	80	37	Female	15
Tanzania	30553	80	25	Female	60
Tanzania	30469	80	25	Female	13
Tanzania	30485	70	20	Female	8
Tanzania	30521	80	27	Female	91
Thailand	40015	80	34	Female	63
Thailand	40297	80	36	Female	71
Thailand	40053	80	35	Female	82
Thailand	40080	80	40	Female	34
Thailand	40087	80	39	Female	33
Thailand	40124	80	24	Male	69
Thailand	40180	80	31	Male	66
Thailand	40252	80	26	Male	68
Thailand	40279	80	27	Male	12
South Africa	0055-051	100	21	Unavailable	31
South Africa	0135-111	100	18	Unavailable	49
South Africa	0149-123	100	23	Unavailable	44
South Africa	0180-142	100	19	Unavailable	69
South Africa	0271-195	100	21	Unavailable	57
South Africa	0359-249	100	23	Unavailable	36
US	36431	100	46	Female	154
US	42523	100	42	Male	68
US	36502	100	49	Male	81
US	42535	100	60	Male	80
US	30930	100	38	Male	122
US	42092	100	20	Male	17
US	34718	100	40	Male	19
US	41472	100	44	Female	25
US	42181	100	28	Female	13
US	32859	100	53	Male	20
US	37344	100	36	Male	7
Rwanda	7002	100	38	Female	11
Rwanda	7008	100	45	Male	16
Rwanda	7034	100	44	Female	24
Rwanda	7037	100	46	Female	67
Rwanda	7038	100	24	Female	20
Rwanda	7043	100	35	Female	14

Table S1 – Study participant demographics.

Antibody	VH	VL	CDRL3
VRC01	IGHV1-2	IGKV3-20	5
N6	IGHV1-2	IGKV1-33	5
VRC-PG20	IGHV1-2	IGLV2-14	5
VRC23	IGHV1-2	IGKV3-14	5
IOMA	IGHV1-2	IGLV2-23	8
1-18	IGHV1-46	IGKV3-20	9
B12	IGHV1-3	IGKV3-20	-
HJ16	IGHV3-30	IGKV4-1	-
CH103	IGHV4-61	IGLV3-1	-
VRC13	IGHV1-69	IGLV2-14	-
VRC16	IGHV3-23	IGKV1-39	-
VRC33	IGHV4-34	IGKV1-5	-

Table S2 –VH and VL genes assigned to each class of antibodies are tabulated. CDRL3 length is shown for the classes where that was considered an inclusion criteria.