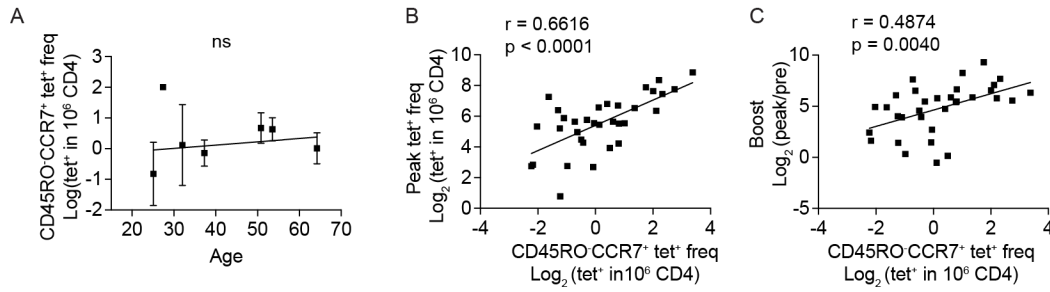
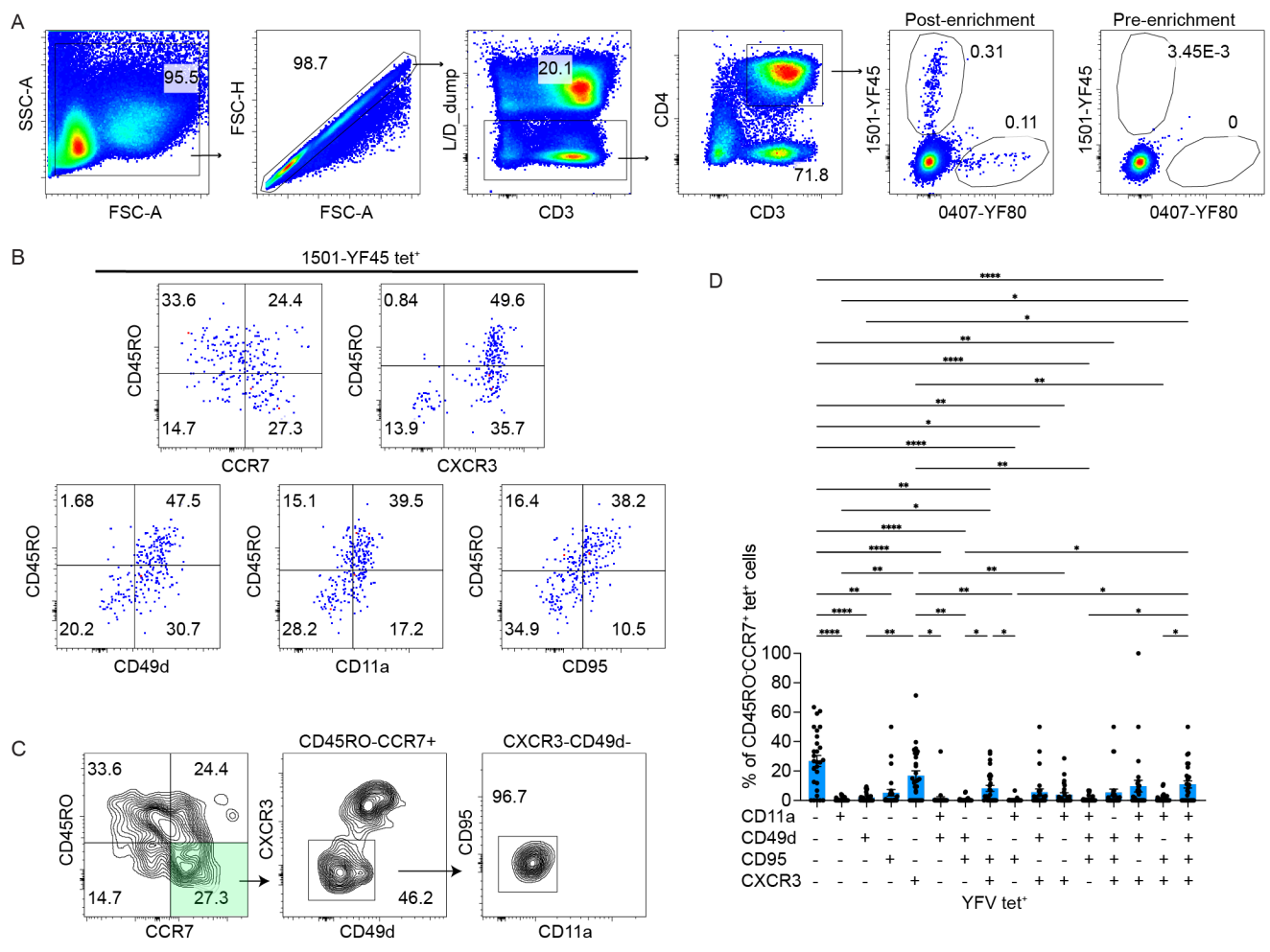


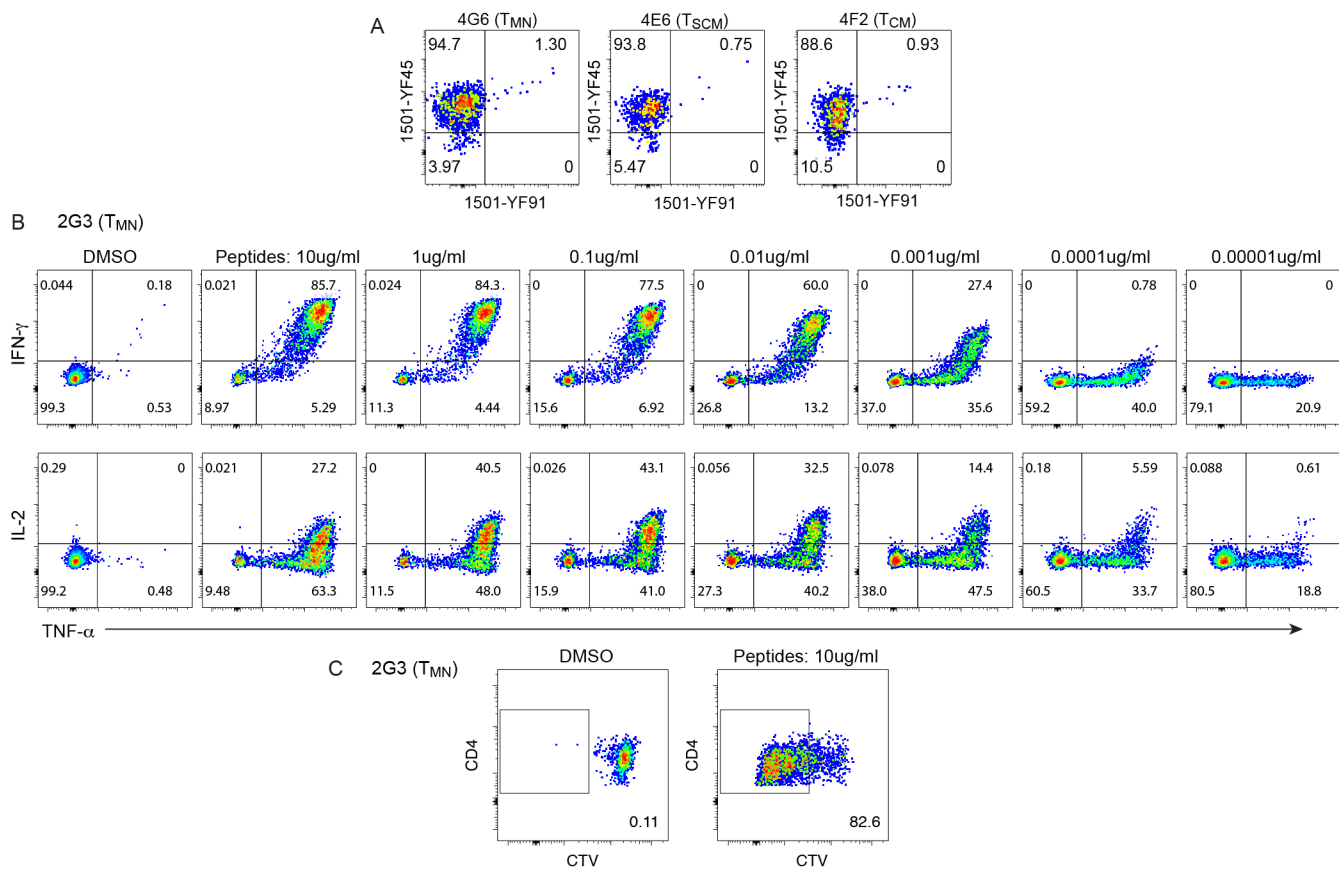
## Supplementary Material



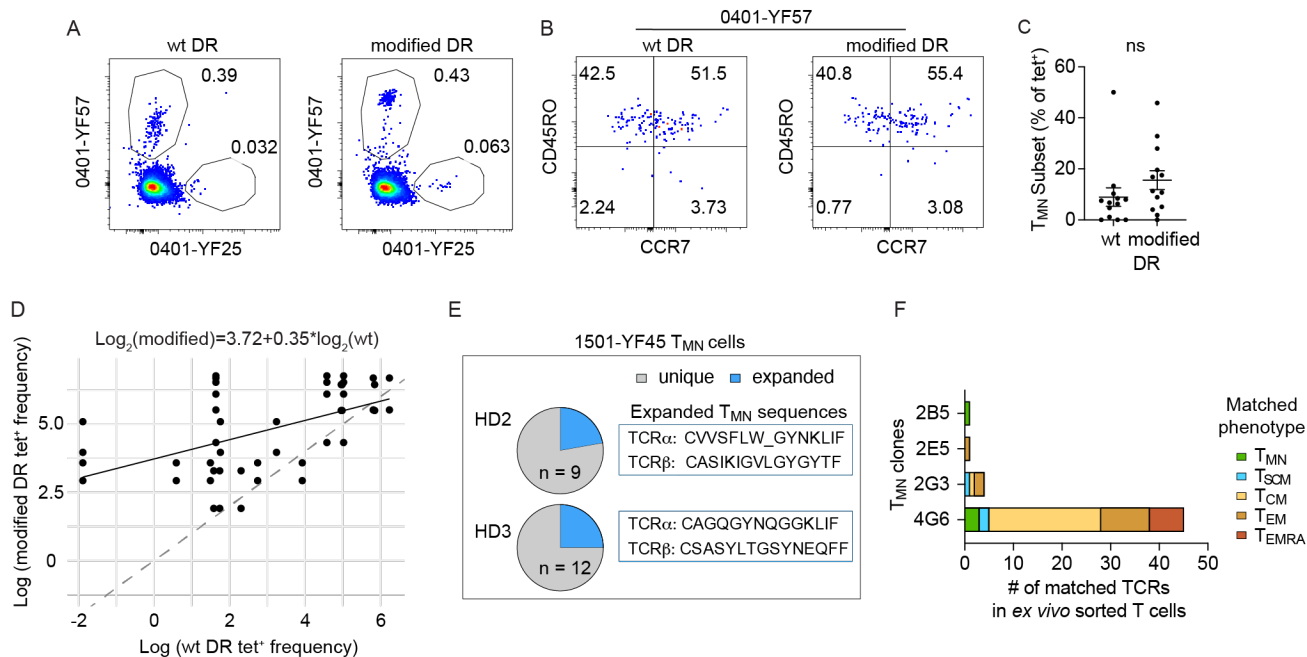
**Figure S1: CD45RO<sup>-</sup>CCR7<sup>+</sup> YFV-specific CD4<sup>+</sup> T cells by age and their relationship to the effector response.** (A) The frequency of post-immune CD45RO<sup>-</sup>CCR7<sup>+</sup> YFV tet<sup>+</sup> CD4<sup>+</sup> T cells in relationship to donor age. Distinct tet<sup>+</sup> populations from the same donor are combined and represented as an average (n = 7). (B) The correlation between the frequency of CD45RO<sup>-</sup>CCR7<sup>+</sup> YFV tet<sup>+</sup> cells measured at least 7 months after vaccination and the highest total tet<sup>+</sup> frequency from a previous time point measured within the first month after vaccination (n = 36). (C) The correlation between CD45RO<sup>-</sup>CCR7<sup>+</sup> YFV tet<sup>+</sup> T cell frequency at least 7 months after vaccination and the fold-change between peak frequency and the pre-vaccine baseline. Pearson correlation was computed.



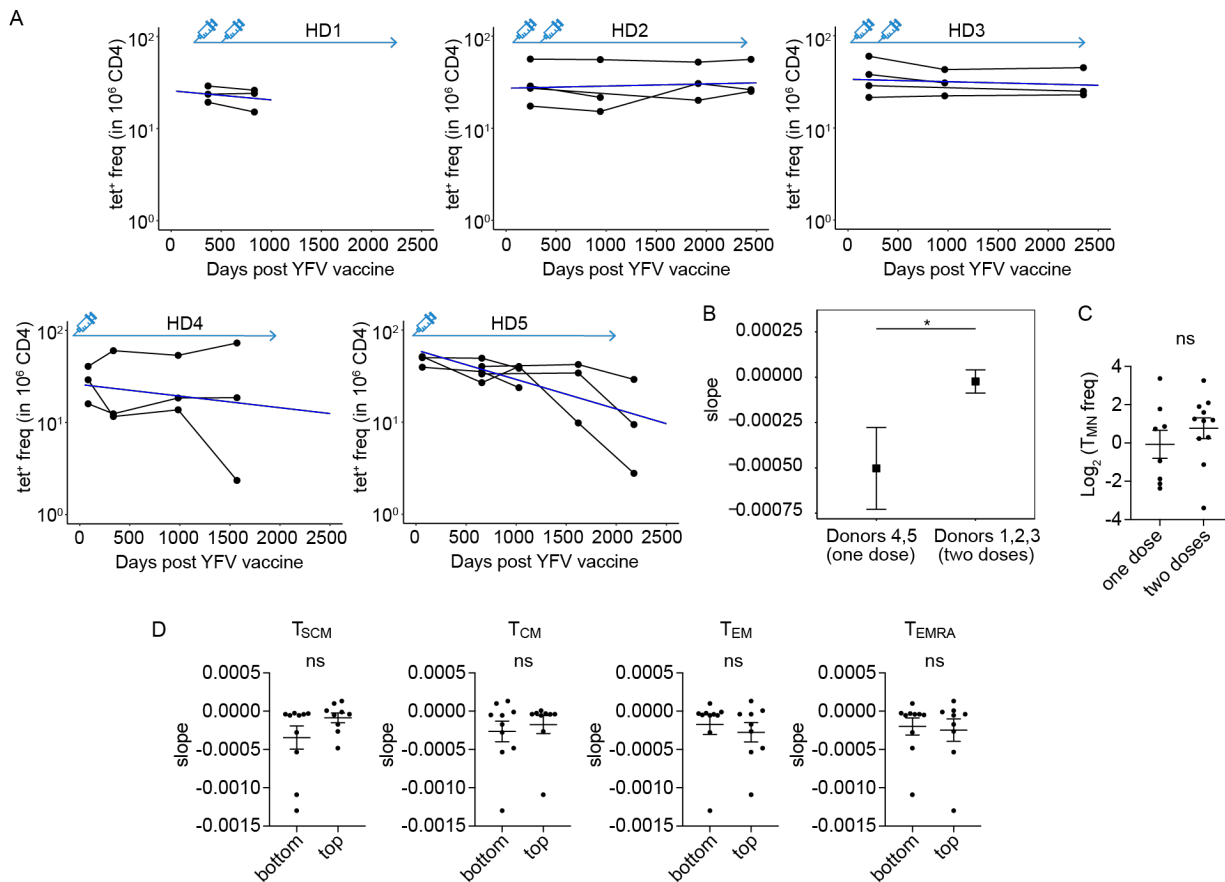
**Figure S2: YFV tetramer<sup>+</sup> CD45RO<sup>-</sup>CCR7<sup>+</sup> T cells contain various phenotypic subsets.** (A) Representative plots show the gating strategy used to identify tetramer<sup>+</sup> cells. (B) FACS plots show the phenotype of YF45-specific T cells by the indicated antibody staining. (C) Representative plots show manual gating for YF45-specific T<sub>MN</sub> cells from HD3. (D) Boolean gates for CD11a, CD49d, CD95, and CXCR3 were applied onto manually gated CD45RO<sup>-</sup>CCR7<sup>+</sup> YFV tet<sup>+</sup> T cells. The plot shows various phenotypic combinations. Each symbol represents a tetramer<sup>+</sup> population (n = 28). One-way ANOVA was performed and corrected with Tukey's multiple comparison test.



**Figure S3: Tetramer staining and peptide responses of YFV-specific T cell clones.** (A) Representative tetramer staining of T<sub>MN</sub>, T<sub>SCM</sub>, and T<sub>CM</sub>-derived YFV-specific T clones. (B) Plots show cytokine response by a T<sub>MN</sub> clone to decreasing concentrations of the cognate YF45 peptides after a 5-hour co-culture with peptide-loaded DCs. (C) Representative plots show CTV staining of a CTV-labeled T cell clone after a 5-day culture with vehicle-treated or peptide-loaded DCs.



**Figure S4: T<sub>MN</sub> cells are antigen-experienced.** (A) Representative plots show the identification of YFV-specific T cells using tetramers generated from wt or modified DR (L112W, S118H, V143M, T157I). (B) CD45RO and CCR7 expression of YF57-specific T cells stained by wt or modified DR. (C) Quantification of T<sub>MN</sub> fraction within tet<sup>+</sup> populations identified by wt or modified tetramers using the same sample. (D) The plot displays paired data from wt and modified DR, with a minimum of two data points per time point for each specificity, which were used to derive the equation for normalization (top). (E) Pie-charts show the distribution of unique versus expanded clonotypes within T<sub>MN</sub> subset of YF45-specific T cells obtained 210-242 days after YFV vaccination. The sequences of the expanded clonotype from each donor are as indicated. (F) T<sub>MN</sub>-derived T cell clones were re-stained with tetramers and sorted for TCR sequencing. Clone-derived TCRs were compared with sequences from directly sorted T cells. The graph shows T<sub>MN</sub>-derived clones and the number of matched TCRs from ex vivo sorted T cells with their phenotypes. For (C), Wilcoxon matched-pairs signed rank test was performed.



**Figure S5: Longitudinal dynamics of YFV-specific populations.** (A) The frequency of tetramer<sup>+</sup> populations by donor. Filled circles represent individual tetramer<sup>+</sup> populations. A line connects T cells labeled by the same tetramer across time points. Mixed effects exponential decay models were fitted to the longitudinal frequencies of individual tetramer-labeled populations for each donor. Blue lines represent the estimated decay. (B) Longitudinal dynamics of tetramer<sup>+</sup> populations were combined for donors who received one YFV dose (donors 4 and 5) and two doses (donors 1, 2, 3). A mixed-effects exponential decay model was employed to estimate the corresponding population slopes for the two groups. (C) The plot summarizes  $T_{MN}$  frequency in donors who received one (donors 4, 5) or two doses (donors 1, 2, 3) of the YFV vaccine. (D) Plots summarize the estimated slopes of individual tetramer<sup>+</sup> populations, divided into top and bottom halves by the averaged frequency of cells expressing the indicated phenotypes. (B) Wald test was used. (C) Mann-Whitney test was used. (D) Welch's t-test was used.

**Table S1: Donor characteristics**

ID	Sex	Age at the time of YFV vaccination	Vaccine dates	Sample collection dates
HD1	M	37	8/25/16	8/28/17
HD2	F	32	9/12/16	5/12/17
HD3	M	64	1/4/17	8/2/17
HD4	M	25	5/22/17	4/23/18
HD5	F	50	4/21/17	2/7/19
HD6	M	53	3/6/17	10/24/19
HD7	M	27	3/6/17	2/23/21

**Table S2: List of YFV peptides**

Peptide	YFV Protein	Sequence
YF108	NS5	VIKILTYPWDRIEEVTR
YF23	NS3	ESATILMTATPPGTS
YF25	NS3	KGPLRISASSAAQRR
YF38	RNA Polymerase	EEFIKVRSHAAIGA
YF42	RNA Polymerase	ACLSKAYANMWSLMY
YF44	NS5	IHLVIHRIRTLIGQE
YF45	NS3	GEVIGLYGNGILVGD
YF50	Protein E	TIRVLALGNQEGSLKTA
YF51	Protein E	TDKMFFVKNPTDTGHGT
YF53	NS3	GLYGNGILVGDNSFVSA
YF54	NS3	LPSIRAANVMAASLRKA
YF57	NS5	TLGEVWKRELNLLDKRQ
YF69	NS3	WILADKRPTAWFLPSIR
YF80	Protein E	TGHGTVVMQVKVSKGAP
YF91	NS5	PPAGTRKIMKVVNRWLF
YF93	Protein E	MGAVLIWVGINTRNMTM

**Table S3: Phenotypic markers**

Phenotype	CD45RO and CCR7 staining	CD95, CXCR3, CD49d, CD11a staining
Naive	CD45RO-CCR7+	Staining not performed
T <sub>CM</sub>	CD45RO+CCR7+	Not applicable
T <sub>EM</sub>	CD45RO+CCR7-	Not applicable
T <sub>EMRA</sub>	CD45RO-CCR7-	Not applicable
T <sub>SCM</sub>	CD45RO-CCR7+	Positive for one of the following: CD95, CXCR3, CD49d, CD11a
T <sub>MN</sub>	CD45RO-CCR7+	Negative for all of the following: CD95, CXCR3, CD49d, CD11a
NA	Staining not performed	Staining not performed

**Table S4: YFV-specific CD4<sup>+</sup> T cells 7months or longer after vaccination**

\*See Table S3 for markers used to define each phenotype

Donor	specificity	Phenotype*	CDR	Clone size
HD2	0407-YF80	Naive	CASSSGGATNEKLFF	1
HD2	0407-YF80	Naive	CASRWGNSPLHF	5
HD2	0407-YF80	TCM	CASIEGGEGDTQYF	1
HD2	0407-YF80	TCM	CASLTSGEGATEAFF	1
HD2	0407-YF80	TCM	CVVSSRHTDKLIF-CASPKSSGSTDQYF	1
HD2	0407-YF80	TCM	CVVSSRHTDKLIF-CASRVTDNEQFF	1
HD2	0407-YF80	TCM	CALITQGGSEKLVF-CASRWGNSPLHF;CVVSSRHTDKLIF-CASRWGNSPLHF	1
HD2	0407-YF80	TCM	CASSLGSAGANVLTF	1
HD2	0407-YF80	TCM	CASSYRDRAFSRRGTEAFF	1
HD2	0407-YF80	TCM	CVVEGQTEAFF	1
HD2	0407-YF80	TCM	CSVEGTSGRGEQFF	2
HD2	0407-YF80	TCM	CSVEGTSGRGEQFF	2
HD2	0407-YF80	TCM	CASEGGGSGANVLTF	3
HD2	0407-YF80	TCM	CASIGGGEGNEQFF	5
HD2	0407-YF80	TCM	CASIGGGEGNEQFF	5
HD2	0407-YF80	TCM	CASIGGGEGNEQFF	5
HD2	0407-YF80	TCM	CASIGGGEGNEQFF	5
HD2	0407-YF80	TCM	CASRWGNSPLHF	5
HD2	0407-YF80	TCM	CASRWGNSPLHF	5
HD2	0407-YF80	TCM	CASRWGNSPLHF	5
HD2	0407-YF80	TCM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TCM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TCM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TCM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TCM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CVVSSRHTDKLIF-CASGTGSSGANVLTF;CALITQGGSEKLVF-CASGTGSSGANVLTF	1
HD2	0407-YF80	TEM	CALITQGGSEKLVF-CASPKSSGSTDQYF	1
HD2	0407-YF80	TEM	CASSFSSGTAGPPLHF	1
HD2	0407-YF80	TEM	CALITQGGSEKLVF-CASSLGSAGANVLTF;CAPDNYGQNFVF-CASSLGSAGANVLTF	1
HD2	0407-YF80	TEM	CAVERQGGSGNTGKLIF-CASSLGSAGANVLTF	1
HD2	0407-YF80	TEM	CVVSSRHTDKLIF-CASSLNPLGPWT GD*GTNEKLFF	1
HD2	0407-YF80	TEM	CATNHGGSGANVLTF	1
HD2	0407-YF80	TEM	CATSSDRVREKLFF	1
HD2	0407-YF80	TEM	CASSLNTGVKQPQHF	2
HD2	0407-YF80	TEM	CASSLNTGVKQPQHF	2
HD2	0407-YF80	TEM	CASEGGGSGANVLTF	3
HD2	0407-YF80	TEM	CASEGGGSGANVLTF	3
HD2	0407-YF80	TEM	CASIGGGEGNEQFF	5
HD2	0407-YF80	TEM	CASRWGNSPLHF	5
HD2	0407-YF80	TEM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TEM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TEM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TEM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TEM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TEM	CASGTGSSGANVLTF	8
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
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HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
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HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	0407-YF80	TEM	CASPKSSGSTDQYF	12
HD2	1501-YF45	Naive	CALRGGGADGLTF-CASSPLSGGAYKTQYF	1
HD2	1501-YF45	Naive	CASSPSRPGGPLSYEQYF	1
HD2	1501-YF45	Naive	CIVRNSGNTPLVF-CSANRGA VSNQPQHF	1

HD2	1501-YF45	Naive	CGADMGGAGTASKLTF-CSANVATNSPLHF	1
HD2	1501-YF45	Naive	CATVDNQGGKLIF-CASSPSRPGGPLSYEQYF	2
HD2	1501-YF45	Naive	CAVLLRL_ATNKLIF-CSASARVGGELFF	2
HD2	1501-YF45	Naive	CIVRGNQFYF-CSASPRVEGEQYF	2
HD2	1501-YF45	Naive	CAMREGPYNFKFYF-CASSLSRQGAREQFF	3
HD2	1501-YF45	Naive	CVVSVGKFSDGQKLLF-CASSQRQGINTEAFF	3
HD2	1501-YF45	Naive	CIVRVAAGNTGKLIF-CASQTGASVTYEQYF	9
HD2	1501-YF45	Naive	CIVRVAAGNTGKLIF-CASQTGASVTYEQYF	9
HD2	1501-YF45	Naive	CIVRVAAGNTGKLIF-CASQTGASVTYEQYF	9
HD2	1501-YF45	Naive	CIALPAGGTSYGKLTFCASSPTGLGDYGYTF;CIALPAGGTSYGKLTFCASSPTGLGDYGYTF	15
HD2	1501-YF45	Naive	CIALPAGGTSYGKLTFCASSPTGLGDYGYTF	15
HD2	1501-YF45	Naive	CIALPAGGTSYGKLTFCASSPTGLGDYGYTF	15
HD2	1501-YF45	TCM	CIVRENSGNTGKLIF-CASHEGWTVGNTIYF	1
HD2	1501-YF45	TCM	CIVRVTNQAGTALIF-CASSGKMTSFSYEQYF	1
HD2	1501-YF45	TCM	CARMSGGFKTIF-CASSLAGVGPGGYEQFF	1
HD2	1501-YF45	TCM	CAFMRGAGANNLFF-CASSLGLSVANEQFF	1
HD2	1501-YF45	TCM	CAVGAQGRGFQKLVFCASSPGGLSTEAFF	1
HD2	1501-YF45	TCM	CASSPGGLSTEAFF	1
HD2	1501-YF45	TCM	CIVRALSGNTGKLIF-CASSPGQTLVTEAFF	1
HD2	1501-YF45	TCM	CIVRPSAGGGNKLTF-CASSSGEVLGEQYF	1
HD2	1501-YF45	TCM	CASSSGGLNTEAFF	1
HD2	1501-YF45	TCM	CIVRYSGGSNYKLTFCASSSGSNTVNTEAFF	1
HD2	1501-YF45	TCM	CAVGAQGGFGNVLHC-CASSSTTDGYTF	1
HD2	1501-YF45	TCM	CIVRPLSGNTPLVF-CASSWTGALGEQYF	1
HD2	1501-YF45	TCM	CIVRVASAGNNRKLIV-CASLSSGGVYNEQFF	1
HD2	1501-YF45	TCM	CALVSNSGYALNF-CATSDFPVVGNYGYTF	1
HD2	1501-YF45	TCM	CIVRVPVNNNDMRF-CSAISGSVYNEQFF	1
HD2	1501-YF45	TCM	CAFISDGQKLLF-CSAKFTTGRKETQYF	1
HD2	1501-YF45	TCM	CATDAYTDKLIF-CSAKMTSGASYEQYF	1
HD2	1501-YF45	TCM	CLVETGNTGKLIF-CSAQMRTGGSGNTIYF	1
HD2	1501-YF45	TCM	CIVPPGGGADGLTF-CSARALTTVAEAF	1
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HD2	1501-YF45	TCM	CAGSSYQGNFVF-CSARSRTGWGTEAFF	1
HD2	1501-YF45	TCM	CVVSEGNAGNMLTF-CSARVLGGPYVEQYF	1
HD2	1501-YF45	TCM	CAGRPNFNKFYF-CSARVLSGGPQETQYF	1
HD2	1501-YF45	TCM	CAAHNDMRF-CSARVLTISYTF	1
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HD2	1501-YF45	TCM	CAENKNQGGKLIF-CSASAGSLGQPQHF	1
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HD2	1501-YF45	TCM	CANAGGTSYGKLTFCASARGYTGELFF	1
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HD2	1501-YF45	TCM	CIVGSGNTGKLIF-CSVNYRTGMNTEAFF	1
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HD2	1501-YF45	TCM	CIVRSAGNMLTF-CASSSGASTPGYEQYF;CIVRSAGNMLTF-CASSSGASTPGYEQYF	5
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HD2	1501-YF45	TCM	CAVQAWDKIIF-CASSVGMGSTDQYF	7
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HD2	1501-YF45	TCM	CAGRTNTGNQFYF-CASSMGLAGGLTGELFF	12
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HD2	1501-YF45	TEM	CAVGSSGNTGKLIF-CASHPGTSIAGELFF	1
HD2	1501-YF45	TEM	CAYRSAGTGNQFYF-CASKMDSWTNTEAFF	1
HD2	1501-YF45	TEM	CIVRVVAGNEKLTFCASSKGSTSGSYNEQFF	1
HD2	1501-YF45	TEM	CAPPDQAGTALIF-CASSLAGVGPGGYEQFF	1
HD2	1501-YF45	TEM	CAGSAINSGGSNYKLTFCASSLEPVRDTEAFF	1
HD2	1501-YF45	TEM	CIGKHTGTASKLTFCASSLGTVNTEAFF	1
HD2	1501-YF45	TEM	CIVTPLSGYALNF-CASSLGPGLAGETQYF	1
HD2	1501-YF45	TEM	CIGWSSGDKLTFCASSLGTSYRAPYEQYF	1
HD2	1501-YF45	TEM	CAGSGGSYIPTFCASSLQM*A RTTDTQYF	1
HD2	1501-YF45	TEM	CADGSGNTGKLIF-CASSLTQGRNSPLHF	1
HD2	1501-YF45	TEM	CIVRVGAGSARQLTFCASSQERLTYTGELFF	1
HD2	1501-YF45	TEM	CAMREGPYNFKFYF-CASSQSRQSAYEQYF	1
HD2	1501-YF45	TEM	CAVGRQGGGADGLTFCASSSGLNTEAFF	1
HD2	1501-YF45	TEM	CIVRPSSGNTGKLIF-CASSSGGSVSNEQFF	1
HD2	1501-YF45	TEM	CAVGAQGGGADGLTFCASSTGGLTTEAFF	1
HD2	1501-YF45	TEM	CAMSPTGGTSYGKLTFCASSVAGSVNTEAFF	1
HD2	1501-YF45	TEM	CAVRGTSYGKLTFCASSYEAG_ANNEQFF	1
HD2	1501-YF45	TEM	CILKAPISGNTPLVF-CSAIQGVVWDTQYF	1
HD2	1501-YF45	TEM	CAAPSGNTGKLIF-CSAPARTGTTEQYF	1
HD2	1501-YF45	TEM	CAENRAAGNKLTF-CSAPVGS LGQPQHF	1
HD2	1501-YF45	TEM	CIVRVEGGNNRKLIF-CSARAPAFAYNEQFF	1
HD2	1501-YF45	TEM	CAMTGSARQLTFCASARAVTGDNSPLHF;CAMTGSARQLTFCASARAVTGDNSPLHF	1
HD2	1501-YF45	TEM	CIVRVAGRSINTDKLIF-CSARDDGEQFF	1
HD2	1501-YF45	TEM	CIVRGPVGGNKLTF-CSARDLGQSYGYTF	1

HD2	1501-YF45	TEM	CAMSVTNPFHNAGNMLTF-CSARPRTGGGEQYF	1
HD2	1501-YF45	TEM	CALSVIQGAQKLVF-CSARTLAGGPGETQYF	1
HD2	1501-YF45	TEM	CAVSDRNGNKLVF-CSARVITGGGEQYF	1
HD2	1501-YF45	TEM	CAGEPYNTDKLIF-CSARVLTYN SPLHF	1
HD2	1501-YF45	TEM	CAVVREETSGSRLTF-CSARVVSGSGIQYF	1
HD2	1501-YF45	TEM	CSARVYVVGSEQFF	1
HD2	1501-YF45	TEM	CAASRPDSWGKLF-CSASARVGGELFF	1
HD2	1501-YF45	TEM	CAPSETDKLIF-CSASAVVGNIQYF	1
HD2	1501-YF45	TEM	CAVKNAGGTSYGKLF-CSASPLSGGANYEQYF;CAVKNAGGTSYGKLF-CSASPLSGGANYEQYF	1
HD2	1501-YF45	TEM	CAENMAAGNKLTF-CSASQGTASGNTIYF	1
HD2	1501-YF45	TEM	CAGRFGGAQKLVF-CSASVRTGDNQPQHF	1
HD2	1501-YF45	TEM	CALSEAYGSGNTGKLF-CSATIRTGAGVEQYF	1
HD2	1501-YF45	TEM	CIVPGTYKYIF-CSATLRTGANTEAFF	1
HD2	1501-YF45	TEM	CAFNLGSDSWGKLF-CSAYQRVAGELFF	1
HD2	1501-YF45	TEM	CALSGYMGGSEKLVF-CSGKAVSGSNQPQHF	1
HD2	1501-YF45	TEM	CAVRVYSSASKIIF-CSVEDRAGGTEAFF	1
HD2	1501-YF45	TEM	CIVRVPSPSAGNMLTF-CSVGNRVGSRELF	1
HD2	1501-YF45	TEM	CLVGAGNTGKLF-CSVSDRVGSDTIYF	1
HD2	1501-YF45	TEM	CIVKGTGTASKLTF-CASSLAGTVNTEAFF	2
HD2	1501-YF45	TEM	CIVSALSGNTGKLF-CASSLGFVAGKELFF	2
HD2	1501-YF45	TEM	CIVSALSGNTGKLF-CASSLGFVAGKELFF	2
HD2	1501-YF45	TEM	CIVSRAGSYQLTF-CASSLTAGRGAGGANVLTF;CAFIMYSGGGADGLTF-CASSLTAGRGAGGANVLTF	2
HD2	1501-YF45	TEM	CIVSRAGSYQLTF-CASSLTAGRGAGGANVLTF	2
HD2	1501-YF45	TEM	CAVQQE_TPLVF-CASSPGGLSTEAFF	2
HD2	1501-YF45	TEM	CAVQQE_TPLVF-CASSPGGLSTEAFF	2
HD2	1501-YF45	TEM	CATVDNQGGKLF-CASSPSRPGGPLSYEQYF	2
HD2	1501-YF45	TEM	CILKTSGSRLTF-CASSTGSTTPNNEQFF	2
HD2	1501-YF45	TEM	CAVSHRSGYSTLTF-CASSTLLAGAPPTDTQYF	2
HD2	1501-YF45	TEM	CIVKNTGTASKLTF-CASSVAGTVNTEAFF	2
HD2	1501-YF45	TEM	CIVKNTGTASKLTF-CASSVAGTVNTEAFF	2
HD2	1501-YF45	TEM	CAGPGDSSYKLF-CASSYSTGGAAKNIQYF	2
HD2	1501-YF45	TEM	CAGPGDSSYKLF-CASSYSTGGAAKNIQYF	2
HD2	1501-YF45	TEM	CAERTSGGYQKVTF-CSAGVRVEGEQFF;CAERTSGGYQKVTF-CSAGVRVEGEQFF	2
HD2	1501-YF45	TEM	CAYRSRYPYNTDKLIF-CSARAVVGGYEQYF;CAGGLTQGGSEKLVF-CSARAVVGGYEQYF	2
HD2	1501-YF45	TEM	CAVRDGSAYNTDKLIF-CSARISNLNQETQYF	2
HD2	1501-YF45	TEM	CAVLIGGATNKLIF-CSARTRVGGEQYF;CAFPPRDKIIF-CSARTRVGGEQYF	2
HD2	1501-YF45	TEM	CAVLIGGATNKLIF-CSARTRVGGEQYF	2
HD2	1501-YF45	TEM	CALNYRKTFF-CSARVLTGNNQPQHF;CAENGGSGNTGKLF-CSARVLTGNNQPQHF	2
HD2	1501-YF45	TEM	CAVLLRL_ATNKLIF-CSASARVGGELFF	2
HD2	1501-YF45	TEM	CIVRGNQFYF-CSASPRVEGEQYF	2
HD2	1501-YF45	TEM	CATGYLMGGATNKLIF-CSASYMTGVGTQYF	2
HD2	1501-YF45	TEM	CATGYLMGGATNKLIF-CSASYMTGVGTQYF	2
HD2	1501-YF45	TEM	CASIKIGVLGYGYTF	3
HD2	1501-YF45	TEM	CASIKIGVLGYGYTF	3
HD2	1501-YF45	TEM	CIVRVQTGANLFF-CASSLAVTVRSSNYGYTF	3
HD2	1501-YF45	TEM	CIVRPSAGNTGKLF-CASSLGFSMTRDGYTF;CAENNGQLGDKIIF-CASSLGFSMTRDGYTF	3
HD2	1501-YF45	TEM	CIVRPSAGNTGKLF-CASSLGFSMTRDGYTF	3
HD2	1501-YF45	TEM	CAMREGPYNFKFYF-CASSLSRQGAREQFF	3
HD2	1501-YF45	TEM	CAMREGPYNFKFYF-CASSLSRQGAREQFF	3
HD2	1501-YF45	TEM	CVVSVGKFSGDGKLLF-CASSQRQGINTEAFF;CIVRSAGNMLTF-CASSQRQGINTEAFF	3
HD2	1501-YF45	TEM	CVVSVGKFSGDGKLLF-CASSQRQGINTEAFF	3
HD2	1501-YF45	TEM	CAASHGFQKLVF-CSAHQNGYTF;CIALPAGGTSYGKLF-CSAHQNGYTF	3
HD2	1501-YF45	TEM	CAASHGFQKLVF-CSAHQNGYTF	3
HD2	1501-YF45	TEM	CSARLSGSIGEQQFF	3
HD2	1501-YF45	TEM	CIVRVRAGNTPLVF-CASSLGLAGSYNEQFF	4
HD2	1501-YF45	TEM	CIVRVRAGNTPLVF-CASSLGLAGSYNEQFF	4
HD2	1501-YF45	TEM	CIVRVAAGQSGYALNF-CASSEGHIPMNTEAFF	5

HD2	1501-YF45	TEM	CIVRVAAGQSGYALNF-CASSEGHIPMNTEAFF	5
HD2	1501-YF45	TEM	CIVRVAAGQSGYALNF-CASSEGHIPMNTEAFF	5
HD2	1501-YF45	TEM	CIVRVAAGQSGYALNF-CASSEGHIPMNTEAFF	5
HD2	1501-YF45	TEM	CIVRSAGNMLTF-CASSSGASTPGYEQYF	5
HD2	1501-YF45	TEM	CASSSTTDGYTF	5
HD2	1501-YF45	TEM	CASSSTTDGYTF	5
HD2	1501-YF45	TEM	CALGGFKTIF-CASSQQQLNTEAFF;CALGGFKTIF-CASSQQQLNTEAFF	7
HD2	1501-YF45	TEM	CALGGFKTIF-CASSQQQLNTEAFF;CALGGFKTIF-CASSQQQLNTEAFF	7
HD2	1501-YF45	TEM	CALGGFKTIF-CASSQQQLNTEAFF;CALGGFKTIF-CASSQQQLNTEAFF	7
HD2	1501-YF45	TEM	CALGGFKTIF-CASSQQQLNTEAFF	7
HD2	1501-YF45	TEM	CALGGFKTIF-CASSQQQLNTEAFF	7
HD2	1501-YF45	TEM	CAVQAWDKIIF-CASSVGMGSTDQYF	7
HD2	1501-YF45	TEM	CAVQAWDKIIF-CASSVGMGSTDQYF	7
HD2	1501-YF45	TEM	CAVQAWDKIIF-CASSVGMGSTDQYF	7
HD2	1501-YF45	TEM	CAVQAWDKIIF-CASSVGMGSTDQYF	7
HD2	1501-YF45	TEM	CAVQAWDKIIF-CASSVGMGSTDQYF	7
HD2	1501-YF45	TEM	CIVRVQTGANLFF-CASTSSGGIYNEQFF	8
HD2	1501-YF45	TEM	CIVRVQTGANLFF-CASTSSGGIYNEQFF	8
HD2	1501-YF45	TEM	CIVRVQTGANLFF-CASTSSGGIYNEQFF	8
HD2	1501-YF45	TEM	CIVRVQTGANLFF-CASTSSGGIYNEQFF	8
HD2	1501-YF45	TEM	CVVSFLW_GYNKLIF-CASIKIGVLGYGYTF	9
HD2	1501-YF45	TEM	CVVSFLW_GYNKLIF-CASIKIGVLGYGYTF	9
HD2	1501-YF45	TEM	CVVSFLW_GYNKLIF-CASIKIGVLGYGYTF	9
HD2	1501-YF45	TEM	CIVRVAAGNTGKLIF-CASQTGASVTYEQYF	9
HD2	1501-YF45	TEM	CAGRTNTGNQFYF-CASSMGLAGGLTGELFF;CALVNRDNARLMF-CASSMGLAGGLTGELFF	12
HD2	1501-YF45	TEM	CAGRTNTGNQFYF-CASSMGLAGGLTGELFF;CALVNRDNARLMF-CASSMGLAGGLTGELFF	12
HD2	1501-YF45	TEM	CAGRTNTGNQFYF-CASSMGLAGGLTGELFF;CAGRTNTGNQFYF-CASSMGLAGGLTGELFF	12
HD2	1501-YF45	TEM	CAGRTNTGNQFYF-CASSMGLAGGLTGELFF;CALVNRDNARLMF-CASSMGLAGGLTGELFF	12
HD2	1501-YF45	TEM	CAGRTNTGNQFYF-CASSMGLAGGLTGELFF	12
HD2	1501-YF45	TEM	CIALPAGGTSYGKLTIF-CASSPTGLGDYGYTF	15
HD2	1501-YF45	TEM	CIALPAGGTSYGKLTIF-CASSPTGLGDYGYTF	15
HD2	1501-YF45	TEM	CIALPAGGTSYGKLTIF-CASSPTGLGDYGYTF	15
HD2	1501-YF45	TEMRA	CAASAINSGGSNYKLTIF-CASSLSALSGNTIYF;CAMREGPYNFKFYF-CASSLSALSGNTIYF	1
HD2	1501-YF45	TEMRA	CAFRNTGNQFYF-CASSPGTSVADTQYF;CAAPIKAAGNKLTIF-CASSPGTSVADTQYF	1
HD2	1501-YF45	TEMRA	CIVLRPPGNTPLVF-CSARESLAGAREQYF	1
HD2	1501-YF45	TEMRA	CILKAPISGNTPLVF-CSARMDSLNTGELFF	1
HD2	1501-YF45	TEMRA	CAPDR_NQFYF-CSARSRTGWGTEAFF	1
HD2	1501-YF45	TEMRA	CAVYNDMRF-CSARVLTNEKLF	1
HD2	1501-YF45	TEMRA	CILKTSGSRLTF-CASSTGSTTPNNEQFF	2
HD2	1501-YF45	TEMRA	CAVSHRSGYSTLTF-CASSTLLAGAPPTDTQYF;CATDAIQ_DYKLSF-CASSTLLAGAPPTDTQYF	2
HD2	1501-YF45	TEMRA	CAYRSRYPYNTDKLIF-CSARAVVGGYEQYF;CAGGLTQGGSEKLVF-CSARAVVGGYEQYF	2
HD2	1501-YF45	TEMRA	CAVRDGSAYNTDKLIF-CSARISNLNQETQYF	2
HD2	1501-YF45	TEMRA	CASIKIGVLGYGYTF	3
HD2	1501-YF45	TEMRA	CSARLSGSIGEQQF	3
HD2	1501-YF45	TEMRA	CIVRSAGNMLTF-CASSSGASTPGYEQYF	5
HD2	1501-YF45	TEMRA	CAVQAWDKIIF-CASSVGMGSTDQYF	7
HD2	1501-YF45	TEMRA	CVVSFLW_GYNKLIF-CASIKIGVLGYGYTF	9
HD2	1501-YF45	TEMRA	CIALPAGGTSYGKLTIF-CASSPTGLGDYGYTF	15
HD2	1501-YF45	TEMRA	CIALPAGGTSYGKLTIF-CASSPTGLGDYGYTF	15
HD2	1501-YF45	TEMRA	CIALPAGGTSYGKLTIF-CASSPTGLGDYGYTF	15
HD2	1501-YF45	TMN	CALSPFSGGYNKLIF-CASSEQLNNYNEQFF	1
HD2	1501-YF45	TMN	CAAKGLK_SGYALNF-CASSPRQGLNTEAFF	1
HD2	1501-YF45	TMN	CAGEVLV_YNKLIF-CASSSTTDGYTF	1
HD2	1501-YF45	TMN	CIVKGTGTASKLTF-CASSLAGTVNTEAFF	2
HD2	1501-YF45	TMN	CIVRVQTGANLFF-CASSLAVTVRSSNYGYTF	3
HD2	1501-YF45	TMN	CAASHGFQKLVF-CSAHQNGNYTF	3
HD2	1501-YF45	TMN	CALGGFKTIF-CASSQQQLNTEAFF	7
HD2	1501-YF45	TMN	CVVSFLW_GYNKLIF-CASIKIGVLGYGYTF	9



HD3	0407-YF54	TEMRA	CAVNNGGNKLVF-CASSNGA_NTGELFF	2
HD3	0407-YF54	TEMRA	CAVEGQGGGYNKLIF-CSARHLQGNRNTTEAFF	2
HD3	0407-YF54	TEMRA	CSARVVQGRRNTEAFF	2
HD3	0407-YF54	TEMRA	CAVNNRDDKIIF-CSARVVQGRRNTEAFF	14
HD3	1501-YF45	Naive	CALIGDDMRF-CAWSLRQAAAPLHF;CALSEGANTGGFKTIF-CAWSLRQAAAPLHF	1
HD3	1501-YF45	Naive	CIVRNNAGNMLTF-CSARATSGGASEQYF	1
HD3	1501-YF45	Naive	CAVHSGNTPLVF-CSARVGSGLADTQYF	1
HD3	1501-YF45	Naive	CAMSHTGFQKLVF-CASSVGSVSGGTGELFF	2
HD3	1501-YF45	Naive	CSAKMRVGGELFF	2
HD3	1501-YF45	Naive	CIVRVGNYGQNFVF-CASSSGLAIEQYF	3
HD3	1501-YF45	Naive	CAASGAL_GYNKLIF-CSARATSGGASEQYF	3
HD3	1501-YF45	Naive	CAGAGGTSYGKLTFCASSMTVQGAIGANVLTF	5
HD3	1501-YF45	Naive	CIVRNNAGNMLTF-CASSPQGPLINEQFF	14
HD3	1501-YF45	Naive	CAGQGYNQGGKLIFFCSASYLTGSYNEQFF	49
HD3	1501-YF45	Naive	CAGQGYNQGGKLIFFCSASYLTGSYNEQFF	49
HD3	1501-YF45	Naive	CAGQGYNQGGKLIFFCSASYLTGSYNEQFF	49
HD3	1501-YF45	Naive	CAGQGYNQGGKLIFFCSASYLTGSYNEQFF	49
HD3	1501-YF45	TCM	CIVRVAADYKLSF-CASSFGTVVDTEAFF	1
HD3	1501-YF45	TCM	CIVRVGAQGAQKLVF-CASSFPRGQINQPQHF	1
HD3	1501-YF45	TCM	CVVIPNW_ANNLFF-CASSLEAGLSTDTQYF	1
HD3	1501-YF45	TCM	CALSDRDTGNQFYF-CASSLGASGGAAGEQFF	1
HD3	1501-YF45	TCM	CAAGT**_AGNMLTF-CASSLGDQVSNQPQHF	1
HD3	1501-YF45	TCM	CIVRVVTDYKLSF-CASSLQGPLSYEQYF	1
HD3	1501-YF45	TCM	CASSQGGNLNTEAFF	1
HD3	1501-YF45	TCM	CAENTNTGGFKTIF-CASSRDRGPYEQYF	1
HD3	1501-YF45	TCM	CASSRNGGPFSEQYF	1
HD3	1501-YF45	TCM	CASSSSGGIYNEQFF	1
HD3	1501-YF45	TCM	CAENNNNARLMF-CASSTQGLITEAFF	1
HD3	1501-YF45	TCM	CIAKATGTASKLTF-CASSYPGTANTEAFF	1
HD3	1501-YF45	TCM	CAAGGRGGNTGKLIFFCSALVRTGDQQPQHF	1
HD3	1501-YF45	TCM	CAAIRGTYKYIFFCSANVRVEGEQYF	1
HD3	1501-YF45	TCM	CATDARTTDSWGKLFCSARILTSNNSPLHF	1
HD3	1501-YF45	TCM	CAAFAYSGAGSYQLTFCSARVGSVIGNTIYF	1
HD3	1501-YF45	TCM	CAASGAGGTSYGKLTFCASARVIAGAYEQYF	1
HD3	1501-YF45	TCM	CAENTPQAGTALIFFCSARVSGFNEQFF	1
HD3	1501-YF45	TCM	CIVRSINNAGNMLTFCSARVVTGSDQPQHF	1
HD3	1501-YF45	TCM	CALDNAGGTSYGKLTFCASARVVGDGTQYF	1
HD3	1501-YF45	TCM	CAYRSSDYKLSFCSASVVTNQPQHF	1
HD3	1501-YF45	TCM	CAENGNAGNMLTFCSATTGSNSGNTIYF	1
HD3	1501-YF45	TCM	CIHGSSTNGKLIFFCSVEVRVGGTEAFF	1
HD3	1501-YF45	TCM	CALCTGGGNKLTFCASSPGLNTEAFF	2
HD3	1501-YF45	TCM	CALCTGGGNKLTFCASSPGLNTEAFF	2
HD3	1501-YF45	TCM	CIVRVQTGANLFFCASTKSGGVYNEQFF	2
HD3	1501-YF45	TCM	CSAKMRVGGELFF	2
HD3	1501-YF45	TCM	CSARILTGEDSPLHF	2
HD3	1501-YF45	TCM	CIVRVAEEAAGNKLTFCASRDLYGYTF	3
HD3	1501-YF45	TCM	CIVRVAEEAAGNKLTFCASRDLYGYTF	3
HD3	1501-YF45	TCM	CASSLEAGLSTDTQYF	3
HD3	1501-YF45	TCM	CIVRVGNYGQNFVF-CASSSGLAIEQYF	3
HD3	1501-YF45	TCM	CIVKVQTGANLFF-CASSSSGGIYNEQFF	3
HD3	1501-YF45	TCM	CIVKVQTGANLFF-CASSSSGGIYNEQFF	3
HD3	1501-YF45	TCM	CAASGAL_GYNKLIF-CSARATSGGASEQYF	3
HD3	1501-YF45	TCM	CAGAGGTSYGKLTFCASSMTVQGAIGANVLTF	5
HD3	1501-YF45	TCM	CSASYLTGSYNEQFF	6
HD3	1501-YF45	TCM	CSASYLTGSYNEQFF	6
HD3	1501-YF45	TCM	CASSTQGLITEAFF	7
HD3	1501-YF45	TCM	CASSTQGLITEAFF	7
HD3	1501-YF45	TCM	CASSTQGLITEAFF	7
HD3	1501-YF45	TCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TCM	CSVEGTSGRGEQFF	12
HD3	1501-YF45	TCM	CSVEGTSGRGEQFF	12



HD3	1501-YF45	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CASSHRGLEQPQHF	1
HD3	1501-YF45	TEMRA	CSARVIVAGELFF	1
HD3	1501-YF45	TEMRA	CSARVQTSGEQYF	1
HD3	1501-YF45	TEMRA	CAASGRAQKLVF-CSASIRTGDNQPQHF	1
HD3	1501-YF45	TEMRA	CIVRVGNYGQNFVF-CASSSGLAIEQYF	3
HD3	1501-YF45	TEMRA	CIVKVQTGANLFF-CASSSSGGIYNEQFF	3
HD3	1501-YF45	TEMRA	CAASGAL_GYNKLIF-CSARATSGGASEQYF	3
HD3	1501-YF45	TEMRA	CSASYLTGSYNEQFF	6
HD3	1501-YF45	TEMRA	CSASYLTGSYNEQFF	6
HD3	1501-YF45	TEMRA	CSASYLTGSYNEQFF	6
HD3	1501-YF45	TEMRA	CASSTQGLITEAFF	7
HD3	1501-YF45	TEMRA	CSARATSGGASEQYF	9
HD3	1501-YF45	TEMRA	CSVEGTSGRGEQFF	12
HD3	1501-YF45	TEMRA	CIVRNNAGNMLTF-CASSPQGPLINEQFF	14
HD3	1501-YF45	TEMRA	CIVRNNAGNMLTF-CASSPQGPLINEQFF	14
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TMN	CAMRSGGGADGLTF-CASIIGTP_SGNTIYF	1
HD3	1501-YF45	TMN	CIVRPSSGNTPLVF-CASSPGSSTSSYNEQFF	1
HD3	1501-YF45	TMN	KGRDDKIIF-CASTLSGGLYNEQFF	1
HD3	1501-YF45	TMN	CIVRVYAGNMLTF-CASSLVQLNTEAFF	2
HD3	1501-YF45	TMN	CIVRVQTGANLFF-CASTKSGGVYNEQFF	2
HD3	1501-YF45	TMN	CAENNNNARLMF-CSVRTGQVTGELFF	2
HD3	1501-YF45	TMN	CAGAGGTSYGKLTFCASSMTVQGAIGANVLTF	5
HD3	1501-YF45	TMN	CSARATSGGASEQYF	9
HD3	1501-YF45	TMN	CSVEGTSGRGEQFF	12
HD3	1501-YF45	TMN	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TMN	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TMN	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TSCM	CVVSAVGGTYKYIF-CASSLALRDRGSIQPQHF	1
HD3	1501-YF45	TSCM	CIVRVVTNAGKSTFCASSLGMNTEAFF	1
HD3	1501-YF45	TSCM	CIVREAGGFKTIF-CASSLHGGTVSTEAFF	1
HD3	1501-YF45	TSCM	CIVRVGAGGTSYGKLTFCASTPTGTVGGTQYF	1
HD3	1501-YF45	TSCM	CALSEAGL_FGNEKLTFCSAKMRVGGELFF	1
HD3	1501-YF45	TSCM	CAVLPGR_GNKLTF-CSALDRVGGEQYF	1
HD3	1501-YF45	TSCM	CLVGATGSARQLTF-CSARGQGVLGELFF	1
HD3	1501-YF45	TSCM	CAMVTSHGKLTFCARLSDGTMRSEAFF	1
HD3	1501-YF45	TSCM	CAVANDMRF-CSARVQTSGBPQHF	1
HD3	1501-YF45	TSCM	CIAGGNTDKLIF-CSARVVSNPQHF	1
HD3	1501-YF45	TSCM	CIVGSSNTGKLIF-CSARYVTGNTGELFF	1
HD3	1501-YF45	TSCM	CSARALSTGEQYF	2
HD3	1501-YF45	TSCM	CSARALSTGEQYF	2
HD3	1501-YF45	TSCM	CAENNNNARLMF-CSVRTGQVTGELFF	2
HD3	1501-YF45	TSCM	CASSLEAGLSTDTQYF	3
HD3	1501-YF45	TSCM	CASSLEAGLSTDTQYF	3
HD3	1501-YF45	TSCM	CAGAGGTSYGKLTFCASSMTVQGAIGANVLTF	5
HD3	1501-YF45	TSCM	CSASYLTGSYNEQFF	6
HD3	1501-YF45	TSCM	CSARATSGGASEQYF	9
HD3	1501-YF45	TSCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	14
HD3	1501-YF45	TSCM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF45	TSCM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	49
HD3	1501-YF91	Naive	CALSEGDQGGKLIF-CASRPEDQPQHF	1
HD3	1501-YF91	Naive	CASSLDFNSPLHF	1
HD3	1501-YF91	Naive	CAESQGGYQKVTF-CASSLSAGGRDEQFF	1
HD3	1501-YF91	Naive	CAF MIDNARLMF-CASSPFLGAVDTQYF	1

HD3	1501-YF91	Naive	CAVGNQFYF-CASSQDRSGGSYN SPLHF;CAVVTGNQFYF-CASSQDRSGGSYN SPLHF	1
HD3	1501-YF91	Naive	CALSEG DQGGK LIF-CASSQDV GGEIGNSPLHF;CAQIGFGNVLHC-CASSQDV GGEIGNSPLHF	1
HD3	1501-YF91	Naive	CASSQDV GGEIGNSPLHF	1
HD3	1501-YF91	Naive	CASSQEGGGYEQYF	1
HD3	1501-YF91	Naive	CAQIGFGNVLHC-CASSQGTGGVVVEKLFF	1
HD3	1501-YF91	Naive	CALSDMDSSYK LIF-CASSSDRGGSNQPQHF	1
HD3	1501-YF91	Naive	CVTGQGGANLFF-CATSVRETQYF	1
HD3	1501-YF91	Naive	CAFVPFGGAQKLVF-CAVFTVEAGRDEAFF	2
HD3	1501-YF91	Naive	CAVGAR_TYKYIF-CASSQDLGFENSPLHF	3
HD3	1501-YF91	Naive	CIVRVERDDKIIF-CSAWDRANYGYTF	4
HD3	1501-YF91	Naive	CIVRVERDDKIIF-CSAWDRANYGYTF	4
HD3	1501-YF91	Naive	CALSEG DQGGK LIF-CASASVAGGTYEQYF	6
HD3	1501-YF91	Naive	CALSEG DQGGK LIF-CASASVAGGTYEQYF	6
HD3	1501-YF91	Naive	CAAPLSGSARQLTF-CSARGRIANYGYTF;CAASFNAGNNRKLW-CSARGRIANYGYTF	7
HD3	1501-YF91	Naive	CAAPLSGSARQLTF-CSARGRIANYGYTF	7
HD3	1501-YF91	Naive	CAAPLSGSARQLTF-CSARGRIANYGYTF	7
HD3	1501-YF91	Naive	CAAPLSGSARQLTF-CSARGRIANYGYTF	7
HD3	1501-YF91	TCM	CASKHRPDSYEQYF	1
HD3	1501-YF91	TCM	CVVSEVQGYGGSQGNLIF-CASEDSWRGGSTDTQYF	1
HD3	1501-YF91	TCM	CIVRV RGGNNDMRF-CASSFQTGGIVTDTQYF	1
HD3	1501-YF91	TCM	CAVPRVEWYGGATNKLIF-CASSGSIELSGYTF	1
HD3	1501-YF91	TCM	CALSEG DQGGK LIF-CASSQDLAGGSYN SPLHF	1
HD3	1501-YF91	TCM	CASSQDLGFENSPLHF	1
HD3	1501-YF91	TCM	CAGTDRGSTLGRLYF-CASSSSTYEQYF;CAGAPGGR_GADGLTF-CASSSSTYEQYF	1
HD3	1501-YF91	TCM	CLVG D IDNAGNMLTF-CASSVIDNEQFF	1
HD3	1501-YF91	TCM	CAVRVTGGFKTIF-CASSYEAGSSSGANV LTF	1
HD3	1501-YF91	TCM	CIPTL_YALNF-CASSYRPDTEAFF	1
HD3	1501-YF91	TCM	CALSEG DQGGK LIF-CSVEGTSGRGEQFF	1
HD3	1501-YF91	TCM	CAGVGMNRDDKIIF-CASSQDV GGEIGNSPLHF	2
HD3	1501-YF91	TCM	CAGVGMNRDDKIIF-CASSQDV GGEIGNSPLHF	2
HD3	1501-YF91	TCM	CAFVPFGGAQKLVF-CAVFTVEAGRDEAFF	2
HD3	1501-YF91	TCM	CAVGAR_TYKYIF-CASSQDLGFENSPLHF	3
HD3	1501-YF91	TCM	CAVGAR_TYKYIF-CASSQDLGFENSPLHF	3
HD3	1501-YF91	TCM	CIVRVERDDKIIF-CSAWDRANYGYTF	4
HD3	1501-YF91	TCM	CIVRVERDDKIIF-CSAWDRANYGYTF	4
HD3	1501-YF91	TCM	CALSEG DQGGK LIF-CASASVAGGTYEQYF	6
HD3	1501-YF91	TCM	CALSEG DQGGK LIF-CASASVAGGTYEQYF	6
HD3	1501-YF91	TCM	CALSEG DQGGK LIF-CASASVAGGTYEQYF	6
HD3	1501-YF91	TCM	CALSEG DQGGK LIF-CASASVAGGTYEQYF	6
HD3	1501-YF91	TCM	CAAPLSGSARQLTF-CSARGRIANYGYTF	7
HD3	1501-YF91	TCM	CSVEGTSGRGEQFF	12
HD3	1501-YF91	TCM	CSVEGTSGRGEQFF	12
HD3	1501-YF91	TEM	CAASEEMDSSYK LIF-CASKHRPDSYEQYF	1
HD3	1501-YF91	TEM	CIVTFRR_GADGLTF-CASSSQNYGYTF	1
HD3	1501-YF91	TEM	CALSEP GGGSEKLVF-CASSYGMWYGYTF	1
HD3	1501-YF91	TEM	CAAPLSGSARQLTF-CSARGRIANYGYTF	7
HD3	1501-YF91	TEM	CAAPLSGSARQLTF-CSARGRIANYGYTF	7
HD3	1501-YF91	TEMRA	CASSLSAGGRDEQFF	1



**Table S5: YF45 tetramer<sup>+</sup> T cells before and 14 days after YFV vaccination**\* Phenotypes are defined as in Table S3. Green highlights naïve and T<sub>MN</sub> cells in day 14 samples.

Donor	visit	Phenotype*	CDR	clone size
HD2	d14 post	NA	CIALPAGGTSYGKLTFCASSPTGLGDYGYTF;CIVRVQTGANNLFF-CASSPTGLGDYGYTF	6
HD2	d14 post	TCM	CILRPNYGGSQGNLIF-CASSKTSGLQSYNEQFF;CILRPNYGGSQGNLIF-CASSKTSGLQSYNEQFF	1
HD2	d14 post	TCM	CIVRPSAGNTGKLIFF-CASSLGFMSMTRDGYTF;CAENNGQLGDKIIF-CASSLGFMSMTRDGYTF	1
HD2	d14 post	TCM	GFGNVLHC-CASSQARQGTPEAFF;CAMREGPFSGGYNKLIF-CASSQARQGTPEAFF	1
HD2	d14 post	TCM	CIVRVAGSARQLTF-CASSSGEIPRSYEQYF	1
HD2	d14 post	TCM	CIVKNTGTASKLTF-CASSVAGTVNTEAFF	1
HD2	d14 post	TCM	CATGPKRGLSDTQYF	1
HD2	d14 post	TCM	CIVRVGNNDMRF-CSAGGRVGTGELFF;CIVRVGNNDMRF-CSAGGRVGTGELFF	1
HD2	d14 post	TCM	CSARAITARYEQYF	1
HD2	d14 post	TCM	CAYRSRYPYNTDKLIF-CSARAVVGGYEQYF;CAGGLTQGGSEKLVF-CSARAVVGGYEQYF	1
HD2	d14 post	TCM	CSARLGSIGEQYF	1
HD2	d14 post	TCM	CSARPGSIETQYF	1
HD2	d14 post	TCM	CIVRVLAGGTSYGKLTFC-SARQGSINTQYF	1
HD2	d14 post	TCM	CAVSVSYLDGGTSYGKLTFC-SARVLSSYNSPLHF;CAVSVSYLDGGTSYGKLTFC-SARVLSSYNSPLHF	1
HD2	d14 post	TCM	CAVRGRLGGGYNKLIF-CSASPLTGDEETQYF	1
HD2	d14 post	TCM	CAGTNNDMRF-CSASVVTGTFGEQYF;CAGTNNDMRF-CSASVVTGTFGEQYF	1
HD2	d14 post	TCM	CIVRSAGNMLTF-CASSSGASTPGYEQYF;CIVRGAGNMLTF-CASSSGASTPGYEQYF	2
HD2	d14 post	TCM	CIVRVQTGANNLFF-CASTSSGGIYNEQFF	2
HD2	d14 post	TCM	CALIRNSGNTPLVF-CSARPRTGGEQYF;CAMSVTNPFHNAGNMLTF-CSARPRTGGEQYF	2
HD2	d14 post	TCM	CVVSVGKFSGQKLLFC-CASSQRQGINTEAFF	3
HD2	d14 post	TCM	CILKTSGSRLTF-CASSTGSTTPNNEQFF;CILKTSGSRLTF-CASSTGSTTPNNEQFF	3
HD2	d14 post	TCM	CILKTSGSRLTF-CASSTGSTTPNNEQFF;CILKTSGSRLTF-CASSTGSTTPNNEQFF	3
HD2	d14 post	TCM	CIVRSTGNKLTFCSAIAGPAYNEQFF;CIVRSTGNKLTFCSAIAGPAYNEQFF	3
HD2	d14 post	TCM	CIVRSTGNKLTFCSAIAGPAYNEQFF	3
HD2	d14 post	TCM	CIVRVQTGANNLFF-CASSLAVTVRSSNYGYTF;FIVRVQTGANNLFF-CASSLAVTVRSSNYGYTF	4
HD2	d14 post	TCM	CIVRVRAGNTPLVF-CASSLGLAGSYNEQFF;CIALPAGGTSYGKLTFC-CASSLGLAGSYNEQFF	4
HD2	d14 post	TCM	CIVRVRAGNTPLVF-CASSLGLAGSYNEQFF	4
HD2	d14 post	TCM	CIVRVRAGNTPLVF-CASSLGLAGSYNEQFF	4
HD2	d14 post	TCM	CASSSTTDGYTF	4
HD2	d14 post	TCM	CASSSTTDGYTF	4
HD2	d14 post	TCM	CASSSTTDGYTF	4
HD2	d14 post	TCM	CAMTGSARQLTF-CSARAVTGDNSPLHF;CAMTGSARQLTF-CSARAVTGDNSPLHF	4
HD2	d14 post	TCM	CAMTGSARQLTF-CSARAVTGDNSPLHF;CAMTGSARQLTF-CSARAVTGDNSPLHF	4
HD2	d14 post	TCM	CIALPAGGTSYGKLTFCASSPTGLGDYGYTF;CIALPAGGTSYGKLTFCASSPTGLGDYGYTF	6
HD2	d14 post	TEM	CIVRSSNTGNQFYFCASNHRPLPYNPLHF;CIVRSSNTGNQFYFCASNHRPLPYNPLHF	1
HD2	d14 post	TEM	CIVKGTGTASKLTF-CASSLAGTVNTEAFF;CIVKGTGTASKLTF-CASSLAGTVNTEAFF	1
HD2	d14 post	TEM	CIVRVGYGQNFVFC-CASSLQPGQVSYEQYF	1
HD2	d14 post	TEM	CADGSGNTGKLIFF-CASSLTQGRNSPLHF	1
HD2	d14 post	TEM	CALSRNSGNTPLVF-CASSQNVGIVYEQYF	1
HD2	d14 post	TEM	CASSSGEIPRSYEQYF	1
HD2	d14 post	TEM	CALVSNSGYALNFC-CATSDFPVGVNYGYTF	1
HD2	d14 post	TEM	CAIPSQFYFC-SANPRVEGTQYF	1
HD2	d14 post	TEM	CVVSAWYSSASKIIF-CSARAVSGGSTDTQYF	1
HD2	d14 post	TEM	CIVRLPISGNTPLVF-CSARPPTLQGTNTEAFF	1
HD2	d14 post	TEM	CALDSRDAGKSTFC-SARRTSILNEQYF	1

HD2	d14 post	TEM	CVVSSYYSSASKIIF-CSARTISGGSTDTQYF;CIVRSTGNKLTFC-SARTISGGSTDTQYF	1
HD2	d14 post	TEM	CIVRVGSWNAGNMLTF-CSASPRVYGEQYF;CIVRVQTGANNLFF-CSASPRVYGEQYF	1
HD2	d14 post	TEM	CIVLTSGTYKYIF-CSASWTSFGEQYF	1
HD2	d14 post	TEM	CSATVRTGGEQYF	1
HD2	d14 post	TEM	CIVSSGNTGKLIF-CSVAWRVGTGELFF	1
HD2	d14 post	TEM	CLVGAGNTGKLIF-CSVSDRVGSDTIYF;GFQKLVF-CSVSDRVGSDTIYF	1
HD2	d14 post	TEM	CIALKAAGNKLTF-CSVSGLAGGGEQFF;CIVRVQTGANNLFF-CSVSGLAGGGEQFF	1
HD2	d14 post	TEM	CALSGNRRARLMF-CSVVVRTGGNQPQHF;CALSGNRRARLMF-CSVVVRTGGNQPQHF	1
HD2	d14 post	TEM	CIVRSAGNMLTF-CASSSGASTPGYEQYF	2
HD2	d14 post	TEM	CIVRVQTGANNLFF-CASTSSGGIYNEQFF	2
HD2	d14 post	TEM	TTRPGYSTLTF-CSAQPHITSEQYF	2
HD2	d14 post	TEM	TTRPGYSTLTF-CSAQPHITSEQYF	2
HD2	d14 post	TEM	CALIRNSGNTPLVF-CSARPTGGEQYF;CAMSVTNPFHNAGNMLTF-CSARPTGGEQYF	2
HD2	d14 post	TEM	CVVSVGKFSDGQKLLF-CASSQRQGINTEAFF;CIVRSAGNMLTF-CASSQRQGINTEAFF	3
HD2	d14 post	TEM	CVVSVGKFSDGQKLLF-CASSQRQGINTEAFF	3
HD2	d14 post	TEM	CASSTGGLTTEAFF	3
HD2	d14 post	TEM	CASSTGGLTTEAFF	3
HD2	d14 post	TEM	CASSTGGLTTEAFF	3
HD2	d14 post	TEM	CILKTSRSRLTF-CASSTGSTTPNNEQFF;CILKTSRSRLTF-CASSTGSTTPNNEQFF	3
HD2	d14 post	TEM	CIVRSTGNKLTFC-SAIAGPAYNEQFF	3
HD2	d14 post	TEM	CIVRVQTGANNLFF-CASSLAVTVRSSNYGYTF;CIVRVQTGANNLFF-CASSLAVTVRSSNYGYTF	4
HD2	d14 post	TEM	CIVRVQTGANNLFF-CASSLAVTVRSSNYGYTF	4
HD2	d14 post	TEM	CIVRVQTGANNLFF-CASSLAVTVRSSNYGYTF	4
HD2	d14 post	TEM	CIVRVVAGNTPLVF-CASSLGLAGSYNEQFF	4
HD2	d14 post	TEM	CASSTTDGYTF	4
HD2	d14 post	TEM	CAMTGSARQLTF-CSARAVTGDNSPLHF;CAMTGSARQLTF-CSARAVTGDNSPLHF	4
HD2	d14 post	TEM	CAMTGSARQLTF-CSARAVTGDNSPLHF;CAMTGSARQLTF-CSARAVTGDNSPLHF	4
HD2	d14 post	TEM	CIALPAGGTSYGKLTFC-CASSPTGLGDYGYTF;CIALPAGGTSYGKLTFC-CASSPTGLGDYGYTF	6
HD2	d14 post	TEM	CIALPAGGTSYGKLTFC-CASSPTGLGDYGYTF	6
HD2	d14 post	TEM	CIALPAGGTSYGKLTFC-CASSPTGLGDYGYTF	6
HD2	d14 post	TEM	CIALPAGGTSYGKLTFC-CASSPTGLGDYGYTF	6
HD3	d14 post	Naive	CAMREVNRRARLMF-CASSLGKTTSGNTIYF	1
HD3	d14 post	Naive	CASSPQDSLGVYNEQFF	1
HD3	d14 post	Naive	CIVRRNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CASSFPMNTEAFF	1
HD3	d14 post	TCM	CASSLDYNEQFF	1
HD3	d14 post	TCM	CVVIPNW ANNLFF-CASSLEAGLSTDTQYF	1
HD3	d14 post	TCM	CAMREGNRFNKFYF-CASSLGGIESGYTF	1
HD3	d14 post	TCM	CIVRPLGGAQKLVF-CASSLGGVLFDTDTQYF	1
HD3	d14 post	TCM	CIVREAGGFKTIF-CASSLHGGTVSTEAFF	1
HD3	d14 post	TCM	CIVRVAISGGYNKLIF-CASSPEGPTYF	1
HD3	d14 post	TCM	CAENRPGV SSASKIIF-CASSPQDSLGVYNEQFF	1
HD3	d14 post	TCM	CIPPLA DDKIIF-CASSSRQGLNTEAFF	1
HD3	d14 post	TCM	CASSVPGPNTEAFF	1
HD3	d14 post	TCM	CAPSTGGGNKLTFC-CASSTQGLITEAFF	1
HD3	d14 post	TCM	CAVQAWVTGGGNKLTFC-CASSVGIGSTDTQYF	1
HD3	d14 post	TCM	CASTAGPLDTEAFF	1
HD3	d14 post	TCM	CPHP-CSARVLTVGEQYF	1
HD3	d14 post	TCM	CASYRDDKIIF-CSARVLVGNNTIYF	1
HD3	d14 post	TCM	CAGPVGSSNTGKLIF-CSVLHRVGGTEAFF	1
HD3	d14 post	TCM	CALFSSNTGKLIF-CSVRRGNGQGDTEAFF	1
HD3	d14 post	TCM	CIVRVYAGNMLTF-CASSLVQLNTEAFF	2
HD3	d14 post	TCM	CIVRSNTDKLIF-CASSPYWTVTDSPLHF;CIWHE_LFYF-CASSPYWTVTDSPLHF	2

HD3	d14 post	TCM	CIVKVQTGANNLFF-CASSSSGGIYNEQFF	2
HD3	d14 post	TCM	CLVGATGSARQLTF-CSARGQGVLGELFF;CLVGATGSARQLTF-CSARGQGVLGELFF	2
HD3	d14 post	TCM	CLVGATGSARQLTF-CSARGQGVLGELFF	2
HD3	d14 post	TCM	CAESVGLH NAGKSTF-CSASLRTGQNQPQH	2
HD3	d14 post	TCM	CAESVGLH NAGKSTF-CSASLRTGQNQPQH	2
HD3	d14 post	TCM	CALSDGGYQKVTF-CSATLSSGGRETQYF	2
HD3	d14 post	TCM	CIVRVGAQGAQKLVF-CASSFPRGQININQPQH	3
HD3	d14 post	TCM	CIGKNTGTASKLTF-CASSPPGQVNTEAFF	3
HD3	d14 post	TCM	CIVRVGNYGQNFVF-CASSSGLAIEQYF	3
HD3	d14 post	TCM	CALCTGGGNKLTFCASSPGLNTEAFF	3
HD3	d14 post	TCM	CALCTGGGNKLTFCASSPGLNTEAFF	3
HD3	d14 post	TCM	CALDNAGGTSYGKLTFCASARVVGDQYF	3
HD3	d14 post	TCM	CIVRATGNQFYF-CSARLGNTNNEQFF	4
HD3	d14 post	TCM	CIVRATGNQFYF-CSARLGNTNNEQFF	4
HD3	d14 post	TCM	CASGSSNTGKLIF-CSASLRTGQNQPQH	4
HD3	d14 post	TCM	CIGGRK QGNLIF-CASSLAQQGNTEAFF;CIVRVGASNTGKLIF-CASSLAQQGNTEAFF	5
HD3	d14 post	TCM	CIVRVGASNTGKLIF-CASSLAQQGNTEAFF	5
HD3	d14 post	TCM	CIVRVGASNTGKLIF-CASSLAQQGNTEAFF	5
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CSARALSTGEQYF	7
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF;CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF;CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TCM	CAGQGYNQGGKLIFF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEM	CASSFGTPLGGELFF	1
HD3	d14 post	TEM	CASSFLKPGQAHGYTF	1
HD3	d14 post	TEM	CAVRLMNYGGSQGNLIF-CASSLEWRGAQMRPFF	1
HD3	d14 post	TEM	CIVRVSGGGGADGLTF-CASSLGSVPPGNTIYF	1
HD3	d14 post	TEM	CIVKAGTALIF-CASSLNPLAGGLTGELFF	1
HD3	d14 post	TEM	CIVRVAGDTGRRALTF-CASSPNLWVPHEQFF	1
HD3	d14 post	TEM	CASSQGGLNTEAFF	1
HD3	d14 post	TEM	CIVKVQTGANNLFF-CASSQSGGVYNEQFF	1
HD3	d14 post	TEM	CAPGR DKIIFF-CASSRWTGPLGQETQYF	1
HD3	d14 post	TEM	CALLNYGQNFVF-CASSVPGPNTEAFF	1
HD3	d14 post	TEM	CAMSHTGFQKLVF-CASSVGSVSGGTGELFF;CIVKAGTALIF-CASSVGSVSGGTGELFF	1
HD3	d14 post	TEM	KGRDDKIIF-CASTLSGGLYNEQFF;CIVRPQTGANNLFF-CASTLSGGLYNEQFF	1
HD3	d14 post	TEM	CAAIRGTYKYIF-CSANVRVEGEQYF	1
HD3	d14 post	TEM	CAVEPQLNAGGTSYGKLTFCASARAVGGEAFF	1
HD3	d14 post	TEM	CAAPGHSNYQLIW-CSARGRVGGEQYF	1



HD3	d14 post	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEMRA	CAL TPLNSGGSNYKLTF-CSAVVGSVMRSPLHF	1
HD3	d14 post	TEMRA	CIVRVVTNAGKSTF-CASSLGFMNTEAFF	2
HD3	d14 post	TEMRA	CASSTQGLITEAFF	3
HD3	d14 post	TEMRA	CIVRNNAGNMLTF-CASSPQGPLINEQFF	26
HD3	d14 post	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TEMRA	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TMN	CSARVLAGGPGEQYF	1
HD3	d14 post	TMN	CASSTQGLITEAFF	3
HD3	d14 post	TSCM	CIVRVAVNAGNMLTF-CSVGQASNTGELFF	1
HD3	d14 post	TSCM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD3	d14 post	TSCM	CAGQGYNQGGKLIF-CSASYLTGSYNEQFF	30
HD2	pre-vac	NA	CILGRDDKIIF-CSAPILAGQGQKLFF;CILGRDDKIIF-CSAPILAGQGQKLFF	1
HD2	pre-vac	NA	CAVAQGGSEKLVF-CSARVLVGYEQYF	1
HD2	pre-vac	Naive	CAASVAGTYKYIF-CASRDRFRTDTQYF	1
HD2	pre-vac	Naive	CASREGPGPRNKNYGYTF	1
HD2	pre-vac	Naive	CIVISGAGGTSYGKLT-CASRKGTGTNEKLF	1
HD2	pre-vac	Naive	CIVRVAGSGGYQKVTF-CASSEQLDYGYTF	1
HD2	pre-vac	Naive	CAMRGNQAGTALIF-CASSLASAQETQYF	1
HD2	pre-vac	Naive	CAVGRSGGSYIPTF-CASSPVLANQETQYF;CAVGRSGGSYIPTF-CASSPVLANQETQYF	1
HD2	pre-vac	Naive	CIVRVAGIGGNTPLVF-CASSQVPGGSEQYF;CIVRVAGIGGNTPLVF-CASSQVPGGSEQYF	1
HD2	pre-vac	Naive	CASSTFGQGSTGNTTEAFF	1
HD2	pre-vac	Naive	CAMSPNYGNNRLAF-CASSYKENYGYTF	1
HD2	pre-vac	Naive	CIVRVAVLGANNLFF-CASWGNYGTYF;CIVRVSVLGGANNLFF-CASWGNYGTYF	1
HD2	pre-vac	Naive	CVVLKPDNFKFYF-CATSEGPFRRNIQYF	1
HD2	pre-vac	Naive	CATVGTGGDVRGDEAFF	1
HD2	pre-vac	Naive	CVVSDFKDKLSF-CSAIVLVSQEYF;CVVSDFKDKLSF-CSAIVLVSQEYF	1
HD2	pre-vac	Naive	CAFSDSNYQLIW-CSAKMLTGNQPQHF	1
HD2	pre-vac	Naive	CVVSGGYSGNTGKLIF-CSAKVLAAFQETQYF;CVVSGGYSGNTGKLIF-CSAKVLAAFQETQYF	1
HD2	pre-vac	Naive	CSAPVIAGRADTQYF	1
HD2	pre-vac	Naive	CAVYDYKLSF-CSARAGTGAFEQYF	1
HD2	pre-vac	Naive	CAGLNTGGFKTIF-CSARASRIGTDTQYF;CAGLNTGGFKTIF-CSARASRIGTDTQYF	1
HD2	pre-vac	Naive	CIVRVEANAGGTSYGKLT-CASARDLTILTDTQYF	1
HD2	pre-vac	Naive	CALSAAGGTSYGKLT-CASARGVVGRNSPLHF	1
HD2	pre-vac	Naive	CAVRSYNTDKLIF-CSARILAGGPYNEQFF	1
HD2	pre-vac	Naive	CAYRSGYRDDKIIF-CSARLRVSSETQYF	1
HD2	pre-vac	Naive	CVVSDSGNQFYF-CSARPLNSPLHF;CVVSDSGNQFYF-CSARPLNSPLHF	1
HD2	pre-vac	Naive	CSARPLTMMKTQYF	1
HD2	pre-vac	Naive	CIVRPPTGNQFYF-CSARRAVISYEYF;CAFRKASGTYKYIF-CSARRAVISYEYF	1
HD2	pre-vac	Naive	CAPRDSGGYQKVTF-CSARVGANYGYTF	1
HD2	pre-vac	Naive	CAVRPRSGNTPLVF-CSARVGSIMDTQYF	1
HD2	pre-vac	Naive	CAYRTGNTGKLIF-CSARVGSISTLHF	1
HD2	pre-vac	Naive	CAVRSPGGADGLTF-CSARVGSLLAQYF	1
HD2	pre-vac	Naive	CAVNQAGTALIF-CSARVGSLNITYF;CAVNQAGTALIF-CSARVGSLNITYF	1
HD2	pre-vac	Naive	CAVPSGSARQLTF-CSARVGSQLETQYF	1
HD2	pre-vac	Naive	CSARVGSQLETQYF	1
HD2	pre-vac	Naive	CAGPGGGADGLTF-CSARVGSLLAQYF	1
HD2	pre-vac	Naive	CAVRGLSGGSNYKLTF-CSARVGSLLTDTQYF;CAVRGLSGGSNYKLTF-CSARVGSLLTDTQYF	1
HD2	pre-vac	Naive	CVVRANSNSGYALNF-CSARVGSLLVETQYF;CVVRANSNSGYALNF-CSARVGSLLVETQYF	1
HD2	pre-vac	Naive	CAVKGYNTDKLIF-CSARVLAGGPGETQYF	1
HD2	pre-vac	Naive	CSARVLAGHPGETQYF	1
HD2	pre-vac	Naive	CAFFSDGQKLLF-CSARVLAGRADTQYF;CAFFSDGQKLLF-CSARVLAGRADTQYF	1

HD2	pre-vac	Naive	CAVSERTGGTSYGKLTf-CSARVLAGRPQETQYF;CAVSERTGGTSYGKLTf-CSARVLAGRPQETQYF	1
HD2	pre-vac	Naive	CAVKDNYGQNFVF-CSARVLAGVGEQFF	1
HD2	pre-vac	Naive	CAVRASTDSWGKlQf-CSARVLAGVSTDTQYF;CAVFWW_YNKLIF-CSARVLAGVSTDTQYF	1
HD2	pre-vac	Naive	CAINTNAGKSTf-CSARVLIGQETQYF;CAINTLAGGTSYGKLTf-CSARVLIGQETQYF	1
HD2	pre-vac	Naive	CSARVLSGGVRETQYF	1
HD2	pre-vac	Naive	CAAMDSNYQLIW-CSARVLTGNQPQHF	1
HD2	pre-vac	Naive	CAVSVAGGADGLTf-CSARVVINSPLHF;CAVSVAGGADGLTf-CSARVVINSPLHF	1
HD2	pre-vac	Naive	CATDVNAGGTSYGKLTf-CSARVVVEGPQHF	1
HD2	pre-vac	Naive	CAASPLNAGGTSYGKLTf-CSARVVVNQPQHF	1
HD2	pre-vac	Naive	CGAGGTSYGKLTf-CSASLRVYGEQFF;CGAGGTSYGKLTf-CSASLRVYGEQFF	1
HD2	pre-vac	Naive	CASNTGFQKLVF-CSASPLVGNTQYF	1
HD2	pre-vac	Naive	CAVGLDARLMF-CSASVLQGAFFQYF	1
HD2	pre-vac	Naive	CAVETPYNTDKLIF-CSAWVLVQGAQYF	1
HD2	pre-vac	Naive	CGLVVSARPDTQYF	1
HD2	pre-vac	Naive	CAASKRSGGNTGKLIF-CSVGMGTVTTYEQYF	1
HD2	pre-vac	Naive	CIVRVATYGQNFVF-CSVPSGGDGYTF	1
HD2	pre-vac	Naive	CSVTDVRSYEQYF	1
HD2	pre-vac	Naive	CAVGGYYGGATNKLIF-CSVVFVVEGGYTF	1
HD2	pre-vac	TCM	CASSASGTSLYEQYF	1
HD2	pre-vac	TCM	CASLDVVTDTQYF	1
HD2	pre-vac	TCM	CAASASYNTDKLIF-CASSLGVDEQYF	1
HD2	pre-vac	TCM	CIVRGLAAQKLVF-CASSPFLGPGVQPQHF;CIVRGLAAQKLVF-CASSPFLGPGVQPQHF	1
HD2	pre-vac	TCM	CAFMRGNARLMF-CASSPPGGYRQETQYF	1
HD2	pre-vac	TCM	CAVISNAGGTSYGKLTf-CASSQDKLRGGETQYF	1
HD2	pre-vac	TCM	CAASLMDSNYQLIW-CASSRAVQPGGATNEKLF	1
HD2	pre-vac	TCM	CALAVTTGNQFYF-CASSRTGWYEQYF	1
HD2	pre-vac	TCM	CIVRGLNAGNMLTf-CSAALLGTGGGGYTF;CIVRGLAAQKLVF-CSAALLGTGGGGYTF	1
HD2	pre-vac	TCM	CAGSVYNTDKLIF-CSARSRVGAQHF	1
HD2	pre-vac	TCM	CALKAAGNKLIF-CSARTGSIYNSPLHF	1
HD2	pre-vac	TCM	CAGRPNAGGTSYGKLTf-CSARVGSPLPDTQYF	1
HD2	pre-vac	TCM	CVVTNSNSGYALNF-CSARVGSPLTDTQYF;CVVTNSNSGYALNF-CSARVGSPLTDTQYF	1
HD2	pre-vac	TCM	CALPQGAQKLVF-CSARVGTNYGYTF;CALPQGAQKLVF-CSARVGTNYGYTF	1
HD2	pre-vac	TCM	CAASSYNDYKLSF-CSASGVAGGEDGYTF	1
HD2	pre-vac	TEM	CFTFSGGYQKVTf-CASSFTTDTQYF	1
HD2	pre-vac	TEM	CAMTSTGFQKLVF-CASSGRLAPNEQFF;CAMTSTGFQKLVF-CASSGRLAPNEQFF	1
HD2	pre-vac	TEM	CILRAVLLGNNDMRF-CASSMWARWPNTAEFF;CILRAVLLGNNDMRF-CASSMWARWPNTAEFF	1
HD2	pre-vac	TEM	CASSPGLAGSGTGELFF	1
HD2	pre-vac	TEM	CAYRSAGAQKLVF-CASSPVLHTQYF;CAYRSAGAQKLVF-CASSPVLHTQYF	1
HD2	pre-vac	TEM	CAGPNSNSGYALNF-CSARAIAGGGEQYF	1
HD2	pre-vac	TEM	CALGGSQGNLIF-CSARDLGLAEETQYF;CAVYDYKLSF-CSARDLGLAEETQYF	1
HD2	pre-vac	TEM	CAVEDPLTDSWGKlQf-CSARVLPSTDTQYF	1
HD2	pre-vac	TEM	CSARVVTGIGQPQHF	1
HD2	pre-vac	TEMRA	CASSLERAPWEKLF	1
HD2	pre-vac	TEMRA	CAVRVPSWGKlQf-CSAAPGDSYNEQFF	1
HD3	pre-vac	NA	CASGFLAPGQTSGNTIYF	1
HD3	pre-vac	NA	CILSQGGSQGNLIF-CASRPRQTEQFF;CILSQGGSQGNLIF-CASRPRQTEQFF	1
HD3	pre-vac	NA	CIVRVGYNARLMF-CASSQVTQLSTAEFF	1
HD3	pre-vac	NA	CIVRVYTGNYFYF-CASSRDIGTEAFF	1
HD3	pre-vac	NA	CAPQMDSSYKLIF-CASSVQGLNTEAFF	1
HD3	pre-vac	NA	CAERRSGGSNYKLTf-CASSTPSRTGGYNEQFF	1
HD3	pre-vac	NA	CAFLMDSNYQLIW-CATRLAGGLQGYNEQFF	1
HD3	pre-vac	NA	CSAGGRPGEQYF	1
HD3	pre-vac	NA	CIVMSGNTPLVf-CSAGQRTNTGELFF	1
HD3	pre-vac	NA	CAVRPYDSWGKlQf-CSAPPLSGGQETQYF;CAVGPYDSWGKlQf-CSAPPLSGGQETQYF	1

HD3	pre-vac	NA	CVVSSPNSGYALNF-CSAPTRVEGPQHF;CVVSSPNSGYALNF-CSAPTRVEGPQHF	1
HD3	pre-vac	NA	CAASAGGGAGGTSYGKLTf-CSARALTVYNSPLHF;CAASAGGGAGGTSYGRLTF-CSARALTVYNSPLHF	1
HD3	pre-vac	NA	CAVRGAGGTSYGKLTf-CSARVGSIQETQYF	1
HD3	pre-vac	NA	CAASGAGGTSYGKLTf-CSARVIAGAYEQYF	1
HD3	pre-vac	NA	CALSAPRAQKLVF-CSARVLAGGPRDTQYF	1
HD3	pre-vac	NA	CAVIDYNQGGKLIFF-CSARVRADYNSPLHF;CAHGRGSQGNLIF-CSARVRADYNSPLHF	1
HD3	pre-vac	NA	CIALNAGGTSYGKLTf-CSARVRTDLGSPLHF	1
HD3	pre-vac	NA	CGADYDNDMRF-CSARVRVVRTQYF;CGADYDNDMRF-CSARVRVVRTQYF	1
HD3	pre-vac	NA	CAMAGNRDDKIIF-CSARVVAWNSPLHF;LGPDSWGKLVF-CSARVVAWNSPLHF	1
HD3	pre-vac	NA	CAVGTGGTSYGKLTf-CSARVVTGDSPLHF	1
HD3	pre-vac	NA	CAVRAANQAGTALIF-CSPVGTGDEKLFF	1
HD3	pre-vac	NA	CIVRGGKLIFF-CSVEMAVRSGEQYF	1
HD3	pre-vac	NA	CILGSSNTGKLIFF-CSASQRTGSSGNTIYF;CILGSSNTGKLIFF-CSASQRTGSSGNTIYF	2
HD3	pre-vac	NA	CSASVVTGDQPQHF	2
HD3	pre-vac	NA	CSASVVTGDQPQHF	2
HD3	pre-vac	NA	CAVLYSGAGSYQLTF-CSASVVTGDQPQHF	4
HD3	pre-vac	NA	CAVLYSGAGSYQLTF-CSASVVTGDQPQHF	4
HD3	pre-vac	Naive	CAVRDAYGGSQGNLIF-CASSLGASGGAAGEQFF	1
HD3	pre-vac	Naive	CAAGRRGNTGKLIFF-CSALVRTGDQPQHF	1
HD3	pre-vac	Naive	CAYRAGNQFYF-CSARVGSLLLETQYF	1
HD3	pre-vac	Naive	CAVQGTGGFKTIF-CSARVGSLLLETQYF	1
HD3	pre-vac	Naive	CSARVGSVQPHEQYF	1
HD3	pre-vac	Naive	CAVLNRDDKIIF-CSARVGSVVGNTIYF	1
HD3	pre-vac	Naive	CAVEEAAGNKLTf-CSARVLAGASGETQYF	1
HD3	pre-vac	Naive	CAGSPQGGSEKLVF-CSARVLTGGNSPLHF	1
HD3	pre-vac	Naive	CAGPYAGGTSYGKLTf-CSARVVTGDNSPLHF	1
HD3	pre-vac	Naive	CALILLDSNYQLIW-CSARVVTGSDQPQHF	1
HD3	pre-vac	Naive	CIVRVQGGVGNQFYF-CSATTRVEGSQYF	1
HD3	pre-vac	Naive	CSVEGTSGRGEQFF	1
HD3	pre-vac	Naive	CAVSSSNTGKLIFF-CSVQHRVGGEQFF	1
HD3	pre-vac	Naive	RSVEGTSGRGEQFF	1
HD3	pre-vac	Naive	CALDNAGGTSYGKLTf-CSARVVGDGTQYF	3
HD3	pre-vac	Naive	CALDNAGGTSYGKLTf-CSARVVGDGTQYF	3
HD3	pre-vac	Naive	CAVLYSGAGSYQLTF-CSASVVTGDQPQHF;CIVRA*YGNKLVF-CSASVVTGDQPQHF	4
HD3	pre-vac	Naive	CAVLYSGAGSYQLTF-CSASVVTGDQPQHF	4

**Table S6: Longitudinal follow-up visits**

ID	Sex	Total YFV doses	Vaccine dates	Longitudinal visit dates					
HD1	M	2	8/25/2016, 9/8/2017	8/28/17	12/4/18				
HD2	F	2	9/12/2016, 5/26/2017	5/12/17	4/11/19	12/14/21	5/25/23		
HD3	M	2	1/4/2017, 8/11/2017	8/2/17	8/29/19	6/15/23			
HD4	M	1	5/22/17	8/14/17	4/23/18	1/30/20	9/8/21		
HD5	F	1	4/21/17	6/22/17	2/7/19	2/13/20	9/27/21	4/6/23	

**Table S7: List of flow cytometry antibodies**

Number	Specificity	Vendor	Cat#	Fluorochrome	Clone ID	RRID
1	CD4	Biolegend	344634	Brilliant Violet 510	SK3	AB_2566017
2	CD11b	Biolegend	301342	APC/Cyanine7	ICRF44	AB_2563395
3	CD19	Biolegend	302218	APC/Cyanine7	HIB19	AB_314247
4	CD3	Biolegend	300410	PE/Cyanine5	UCHT1	AB_314064
5	CD45RO	Biolegend	304238	Brilliant Violet 605	UCHL1	AB_2562153

6	CCR7	Biolegend	353234	Brilliant Violet 650	G043H7	AB_2563867
7	CXCR3	Biolegend	353716	Brilliant Violet 421	G025H7	AB_11124720
8	CD11a	Biolegend	301216	Alexa Fluor® 488	HI111	AB_2265103
9	CD49d	Biolegend	304332	Brilliant Violet 711	9F10	AB_2687197
10	CD95	Biolegend	305646	Brilliant Violet 785	DX2	AB_2629741
11	CXCR3	Biolegend	353736	PE/Dazzle™ 594	G025H7	AB_2564287
12	CD49d	Biolegend	304322	Brilliant Violet 421	9F10	AB_2563971
13	CD4	Biolegend	300514	APC	RPA-T4	AB_314082
14	TNF- $\alpha$	Biolegend	502930	PE/Cyanine7	MAb11	AB_2204079
15	IFN- $\gamma$	Biolegend	502506	FITC	4S.B3	AB_315230
16	IFN- $\gamma$	Biolegend	502538	Brilliant Violet 650	4S.B3	AB_11126140
17	IL-2	Biolegend	500338	Brilliant Violet 510	MQ1-17H12	AB_2562629