

Supplementary Information

Conformational flexibility of HIV-1 envelope glycoproteins modulates transmitted / founder sensitivity to broadly neutralizing antibodies

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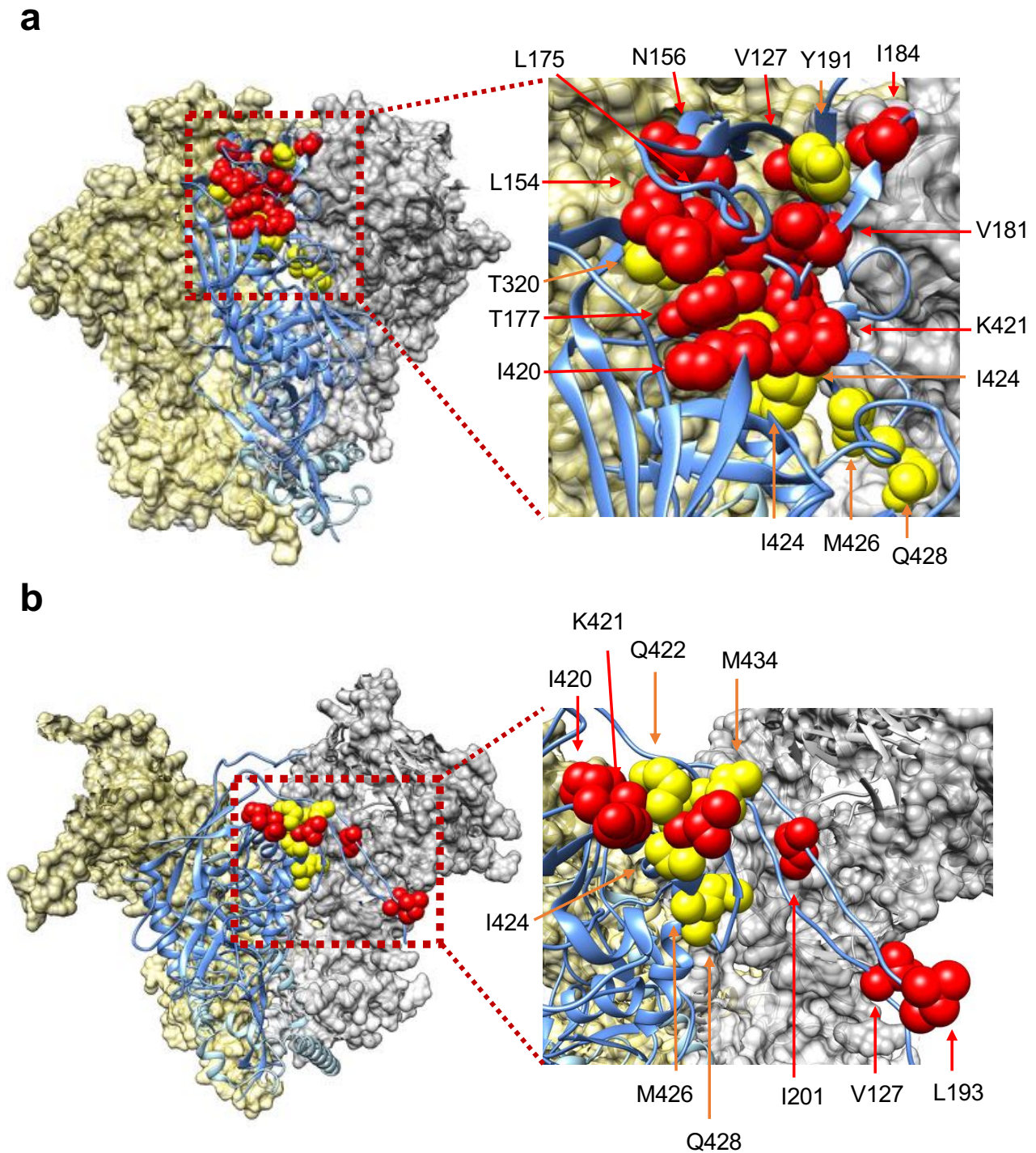
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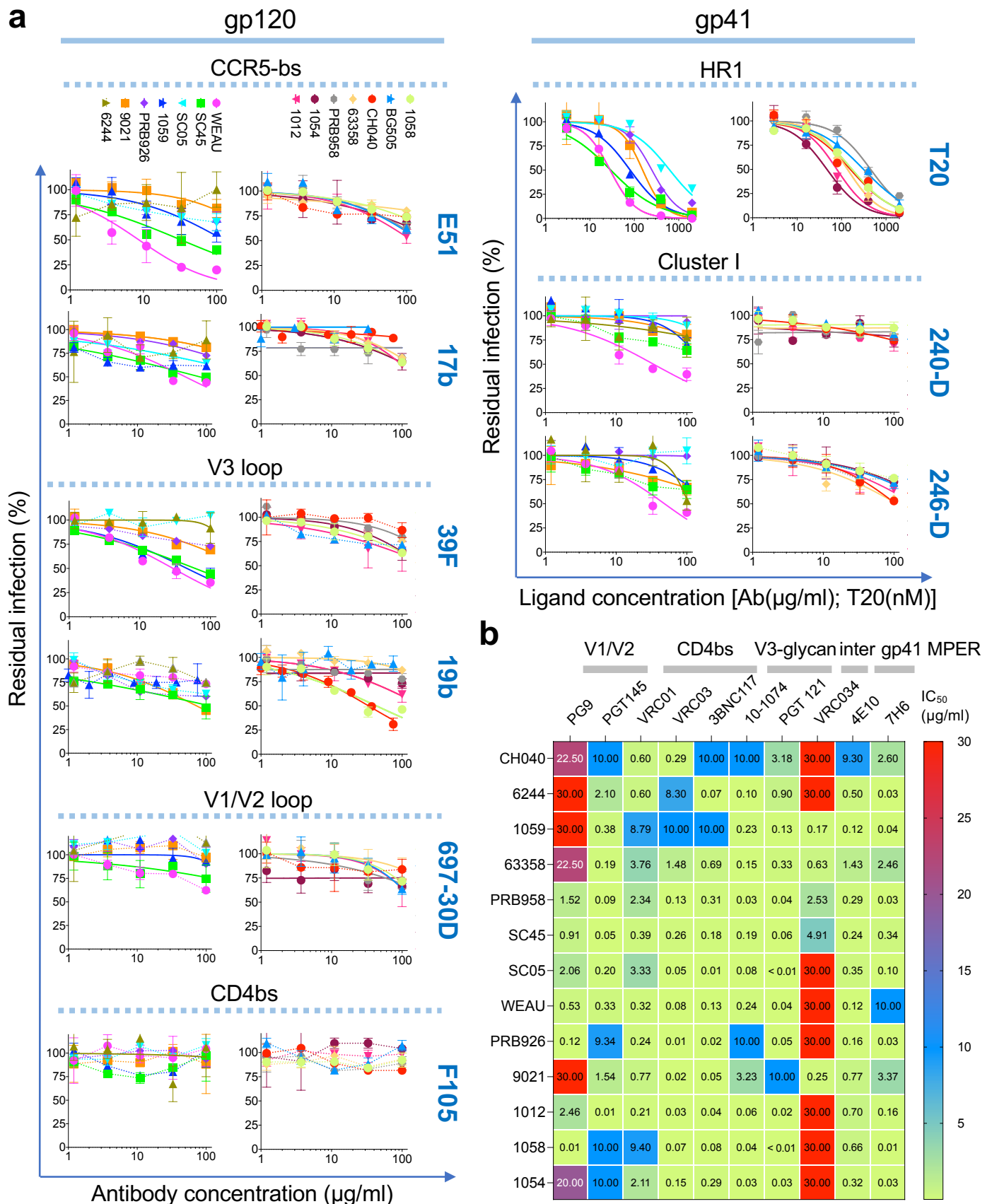
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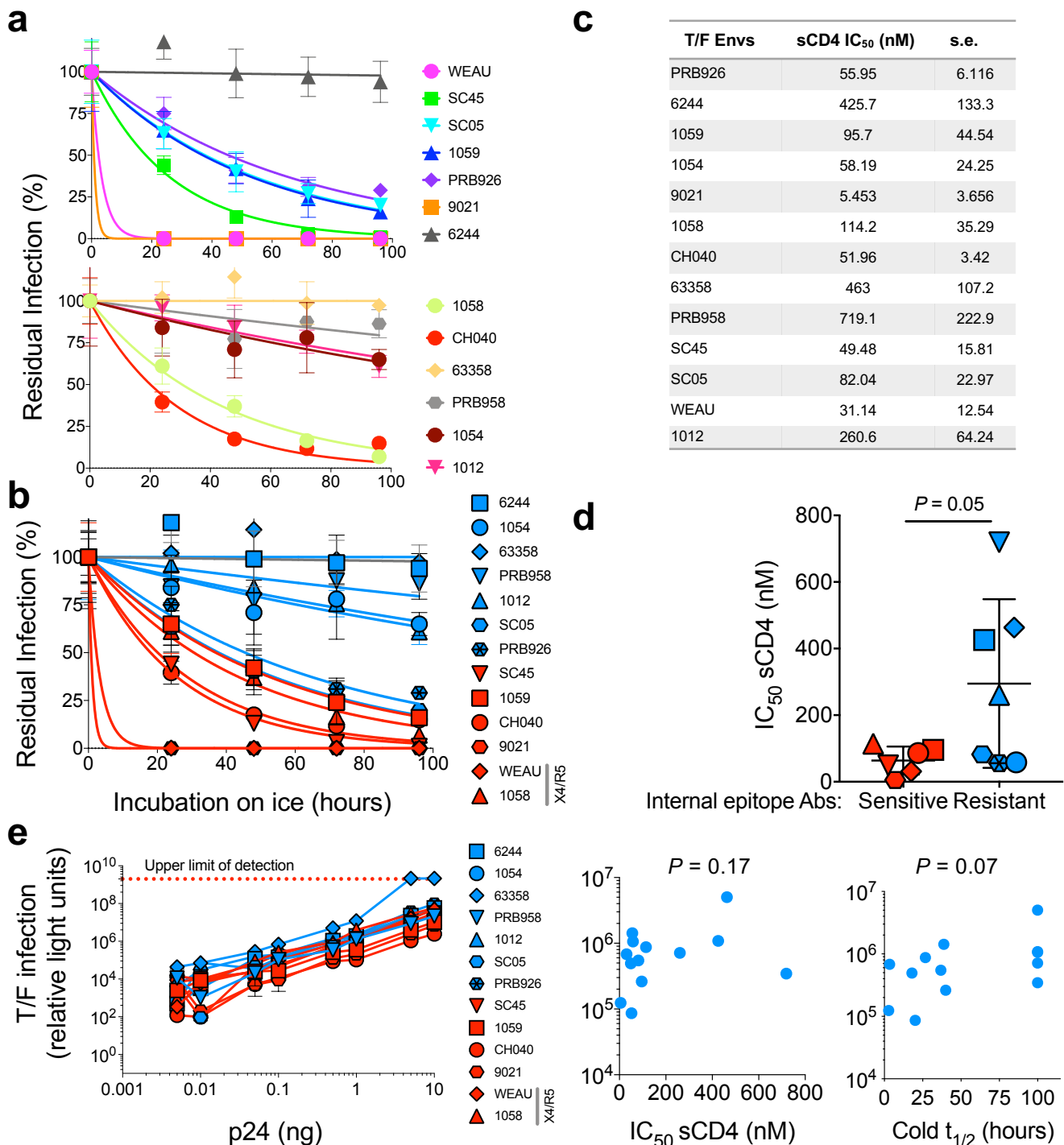
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Supplementary Figure 1. Env residue mapping. We mapped Env residues that contribute to maintenance of Env closed conformation on available SOSIP Env structures. Residues that were resolved and in which changes resulted in hypersensitivity to multiple internal-epitope Env ligands (red) or only one internal-epitope Env ligand (yellow) are labeled (neutralization data and ligands tested are shown in Fig. 1 and Supplementary table 1). a, We used the crystal structure of BG505 SOSIP bound to BMS806, which blocks conformational changes of HIV-1 Env on virions (pdb entry 6mtj). b, We used the model of B41 SOSIP bound to sCD4 and 17b (pdb entry 5vn3). Left panels - SOSIP trimers with 2 of the protomers shown as surfaces and one front protomer shown as ribbon in which specific residues were mapped. Right - enhanced view of specific residues. Figure was prepared using the Chimera program (<https://www.cgl.ucsf.edu/chimera/>).

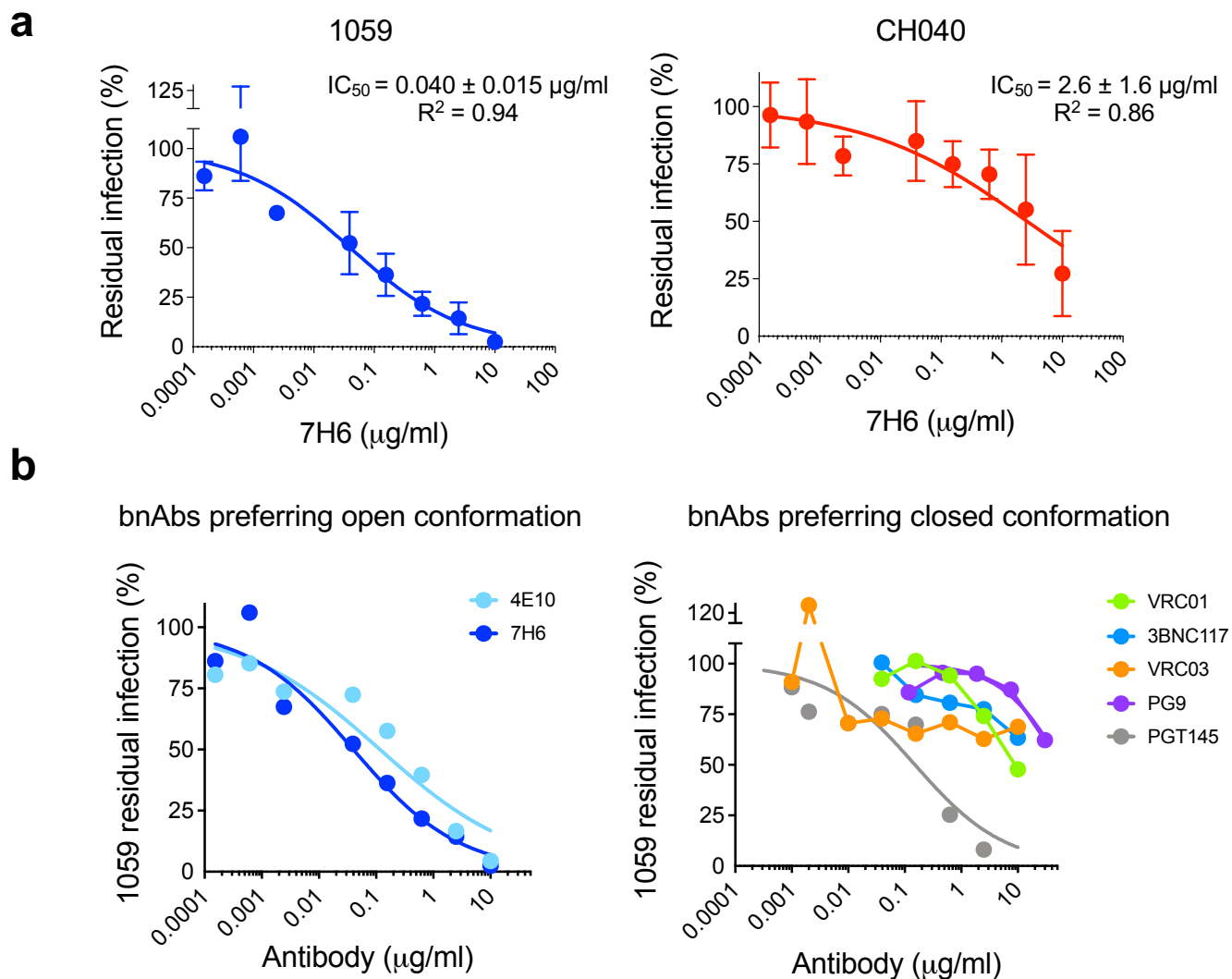


Supplementary Figure 2. Sensitivity of HIV-1 pseudotyped with transmitted/founder (T/F) Envs to different ligands. **a**, Sensitivity to ligands preferentially recognizing internal epitopes. BG505, a control. Dashed lines connect data that could not be fitted to a standard inhibition curve. Data are mean values $\pm$ s.d.; $n = 2$ or 4 technically independent experiments except for 6244 data, which represent one of 2 independent experiments, each performed in duplicate. Additional repeats of independent experiments for selected Envs and Abs are shown in Fig. 1. **b**, We calculated the sensitivity (IC₅₀ values) of 13 T/F Envs to bnAbs of all known classes from dose response curves (representative curves are shown in Supplementary Fig. 3). 10.0 or 30.0 values represent values >10 or >30 μ g/ml, respectively; inter, gp120-gp41 interface.

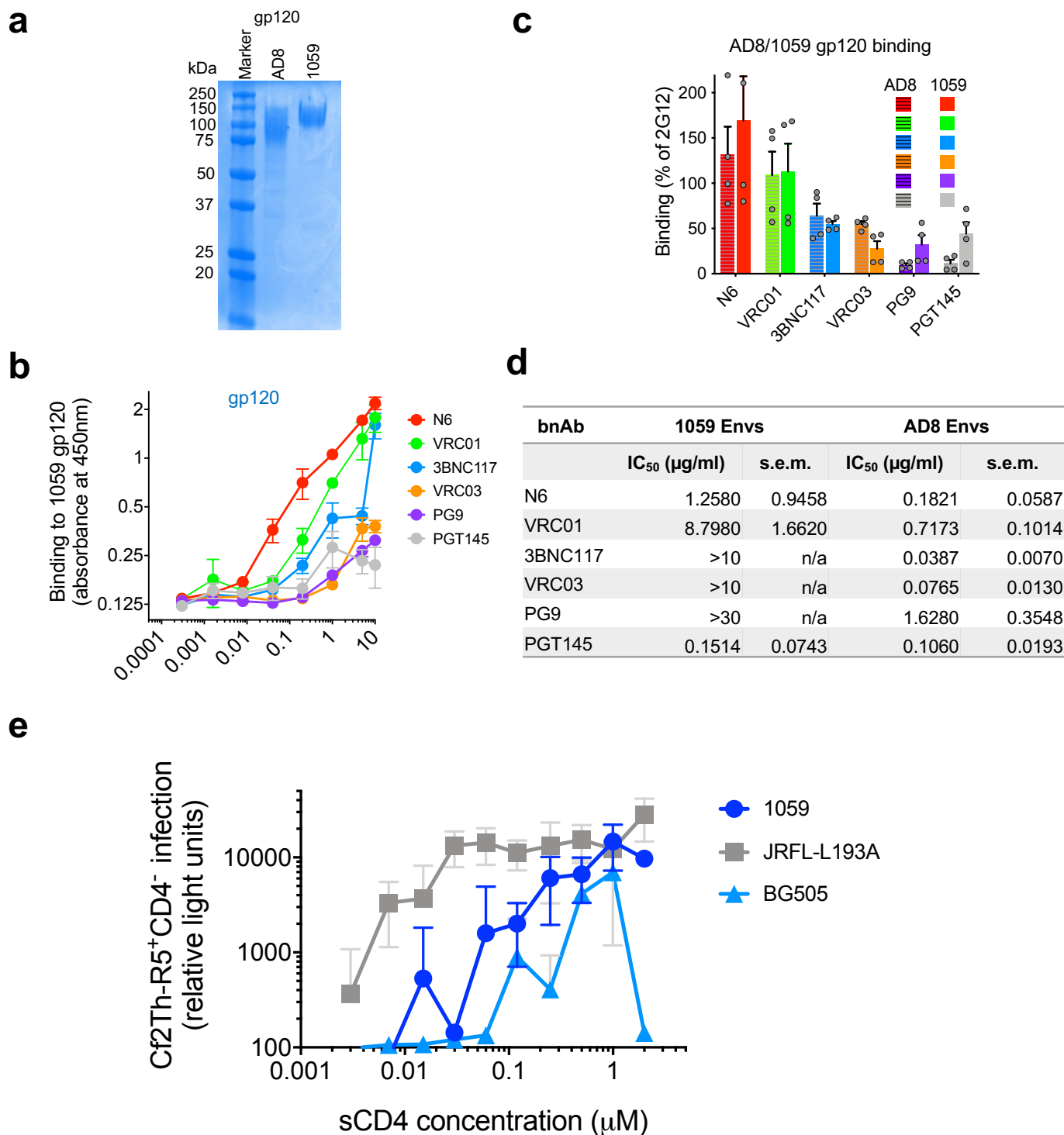


Supplementary Figure 3. HIV-1 T/F Env sensitivity to cold exposure and soluble CD4 (sCD4).

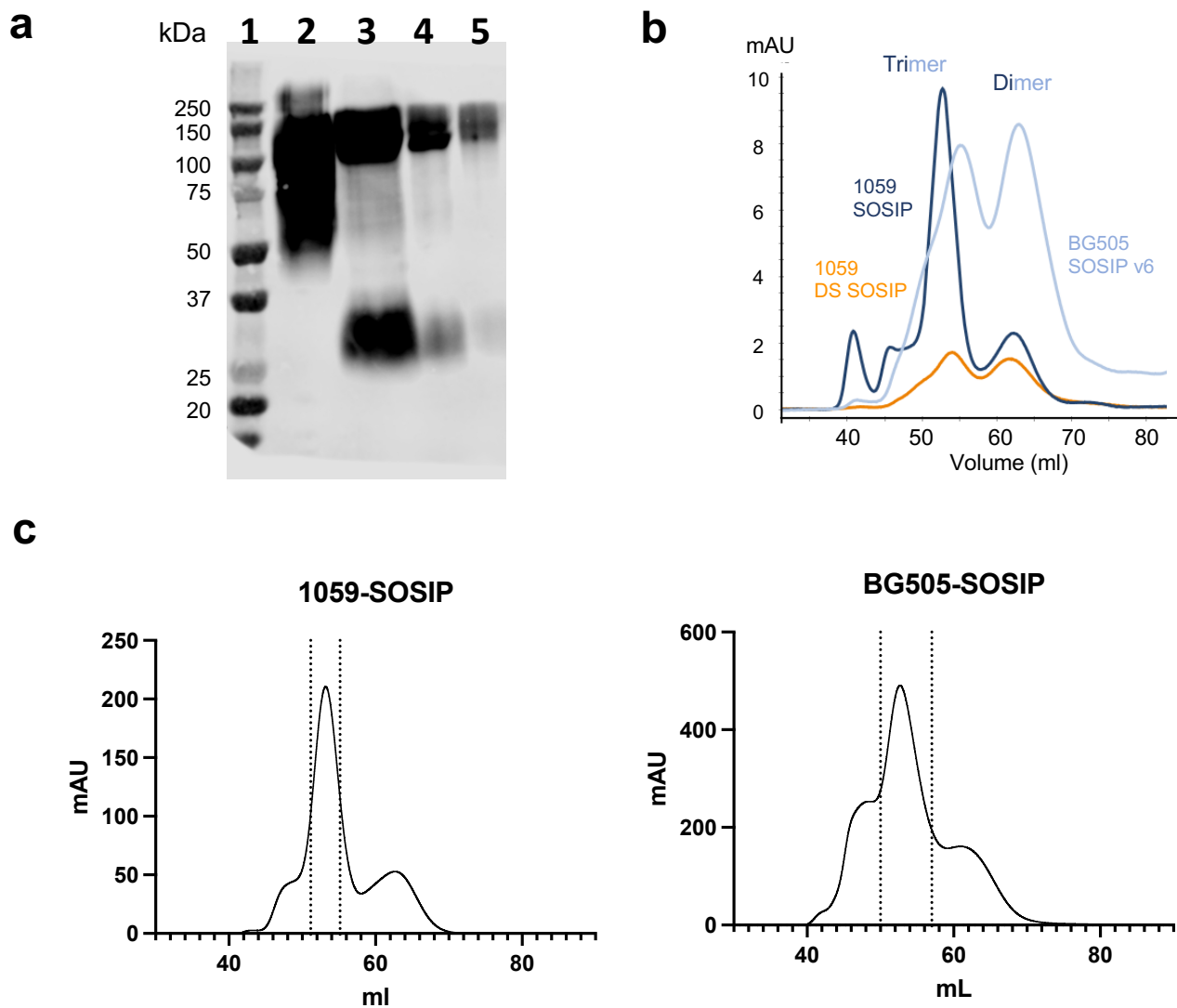
a, We assessed sensitivity of 13 T/F Envs to cold exposure by measuring viral (pseudoviruses) infectivity after pre-incubation of the pseudoviruses on ice for the indicated times. **b**, Similar to (**a**) but T/F Envs were plotted on a single plot and color coded according to sensitivity to internal-epitope antibodies. Blue, resistant Envs (up to 100 µg/ml); red, Envs that were moderately inhibited by at least one internal-epitope antibody. Two dual-tropic (X4/R5) T/F Envs in this group are indicated in panel (**b**) legend. **c**, Sensitivity of HIV-1 pseudotyped with 13 T/F Envs to sCD4. Half maximal inhibitory concentrations (IC₅₀s) were calculated from dose response curves of pseudoviruses to increasing concentration of sCD4. **d**, Statistical analysis of difference between sCD4 sensitivity of T/F Envs that are sensitive and those that are resistant to internal-epitope antibodies. **e**, **Controls**. Left - we measured comparable infection levels of Cf2Th-CD4/CCR5 target cells by HIV-1 pseudotyped with 13 T/F Envs regardless of their internal-epitope exposure. Right - we did not detect statistically significant correlation between T/F viral infectivity and sCD4 or cold sensitivity. Color codes in panels **d** and **e** (left) are identical to the code in panel **b**. *P*, calculated two-tailed Student's *t*-test *P* value (panel **d**) and two-tailed Spearman correlation *P* value (panel **e**). Data are mean ± s.d. of representative (**a**, **b**, and **e**) or average (**d**) of *n* = at least 2 independent experiments, each performed with 2 or 4 replicates.



Supplementary Figure 4. HIV-1 T/F Env sensitivity to bnAbs. **a**, Sensitivity of viral entry, mediated by two T/F Envs, to the gp41-directed 7H6 bnAb. **b**, Sensitivity of viral entry mediated by 1059 Envs to bnAbs that prefer specific Env conformations. Data of 1059 sensitivity to 7H6 from panel **a** (left) is shown also in panel **b** (left) for reference. Data are mean values + s.e.m. (**a**) or mean values (**b**) of $n = 2$ independent experiments, each performed at least in duplicate. Calculated IC_{50} values of T/F Env sensitivity to all bnAbs tested are reported in **Supplementary Fig. 10** (exact values indicated on a heat map).

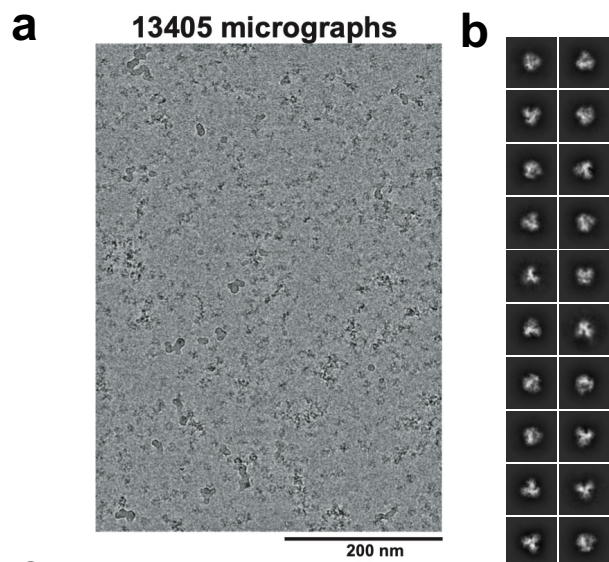


Supplementary Figure 5. Antibody binding to soluble gp120 and CD4 dependence of HIV-1 Env-mediated entry. **a**, SDS-PAGE of purified 1059 gp120. Gel is a representative of $n = 2$ independent experiments. **b**, Binding of CD4bs and V1V2 bnAbs to soluble 1059 gp120. **c**, Comparison of CD4bs and V1V2 bnAbs binding (1 $\mu\text{g/ml}$) to soluble gp120 of AD8 and 1059. **d**, Comparison of AD8 and 1059 pseudovirus neutralization by bnAbs from (c). Data in panels **b-d** are mean values + s.e.m. of $n = 2$ independent experiments, each performed at least in duplicate. **e**, We incubated recombinant pseudoviruses carrying the different Envs with CD4-negative, CCR5-expressing Cf2Th cells in the presence of indicated concentrations of sCD4. Between 48-72 hours post infection we measured the activity of firefly luciferase reporter protein (relative light units) to assess viral entry. Data are mean values $\pm$ s.d. of a representative from $n = 2$ independent experiments, each performed in triplicate.

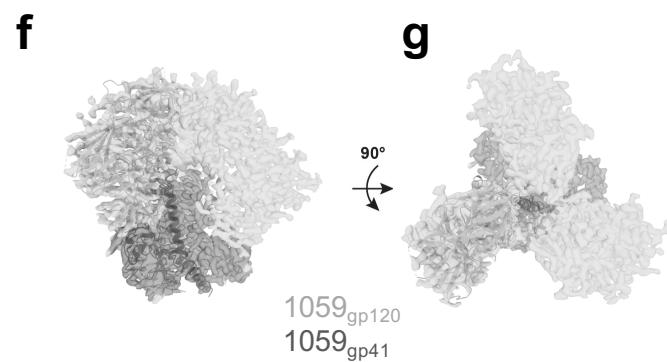
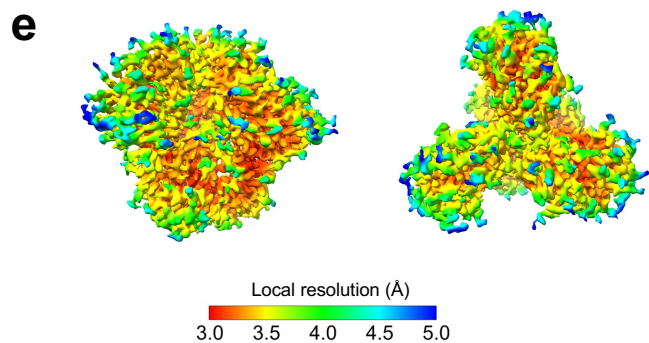
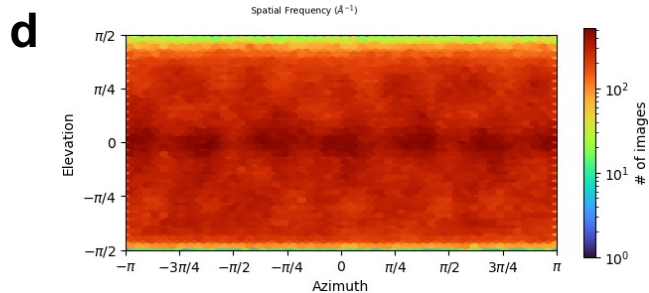
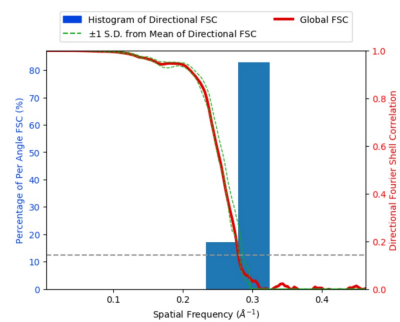


Supplementary Figure 6. Soluble 1059-SOSIP Env variants. **a**, Western blot of different 1059-SOSIP variants expressed in 293F cells for 4 days and analyzed directly from cell supernatants. We detected the SOSIP Env proteins using 1:10,000 dilution of serum of PLWH + 0.5 μ g/ml of JR52 antibody, which recognizes the D7324 epitope, followed by anti-human (1:10,000 dilution) + anti-mouse (1:20,000 dilution), both conjugated to horseradish peroxidase (HRP). Lanes: 1, ladder; 2, HIV-1_{AD8} gp120 control; 3, TPA WT; 4, TPA P22A (contains amino acid Alanine at position 22 of the signal peptide); 5, DS. TPA, signal peptide of the Tissue Plasminogen Activator; DS, 1059 SOSIP that contains the amino acid changes 201C and 433C (used only for the gel filtration in panel **b**). TPA-1059 SOSIP (lane 3) that includes only SOSIP mutations exhibited the highest expression levels and was used in all studies described in the main text. Blot is a representative of $n = 2$ independent experiments except for the TPA P22A variant that was tested only once. **b**, Comparison of size exclusion chromatography (SEC) profile of 1059 and BG505 SOSIP v6 trimers (both contained the signal peptide derived from the TPA). **c**, SEC profiles of 1059-SOSIP and BG505-SOSIP preparations used for determining structures of the unliganded Envs. The dashed vertical lines indicate the fractions that were pooled for downstream studies.

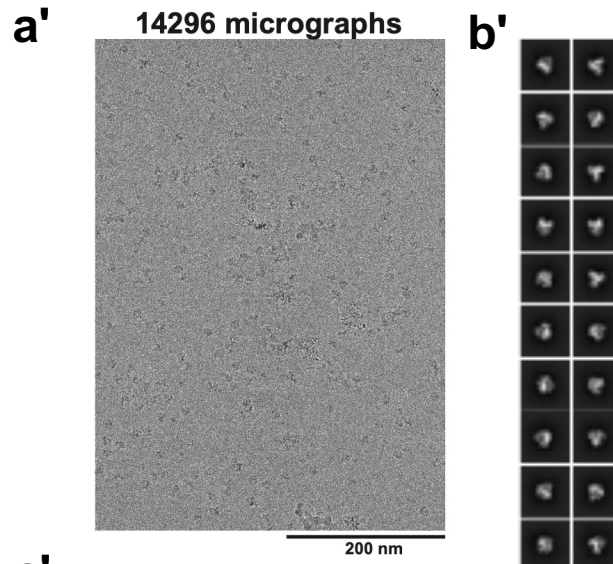
1059-SOSIP



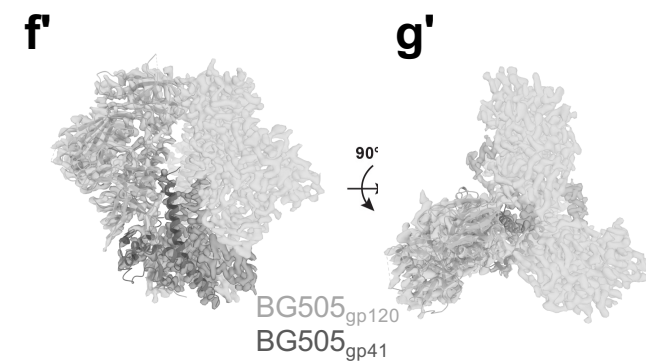
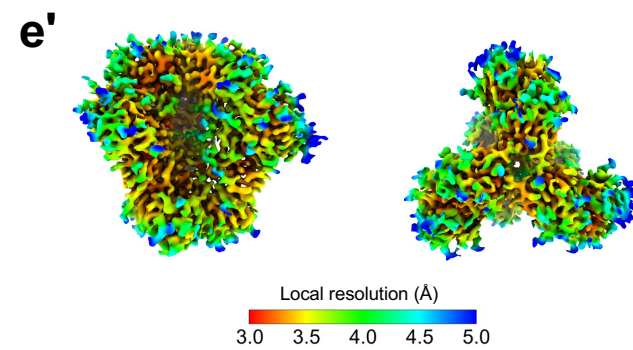
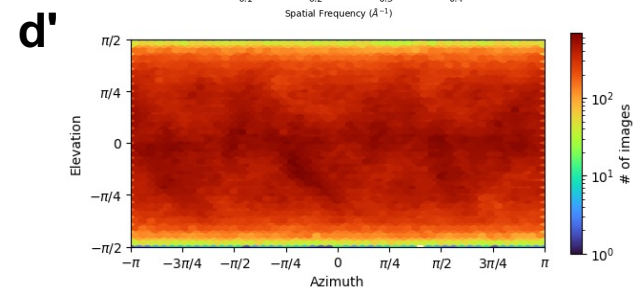
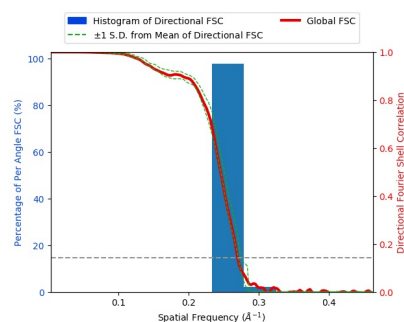
c 737,608 particles
Sphericity = 0.983, Global resolution = 3.60 Å



BG505-SOSIP

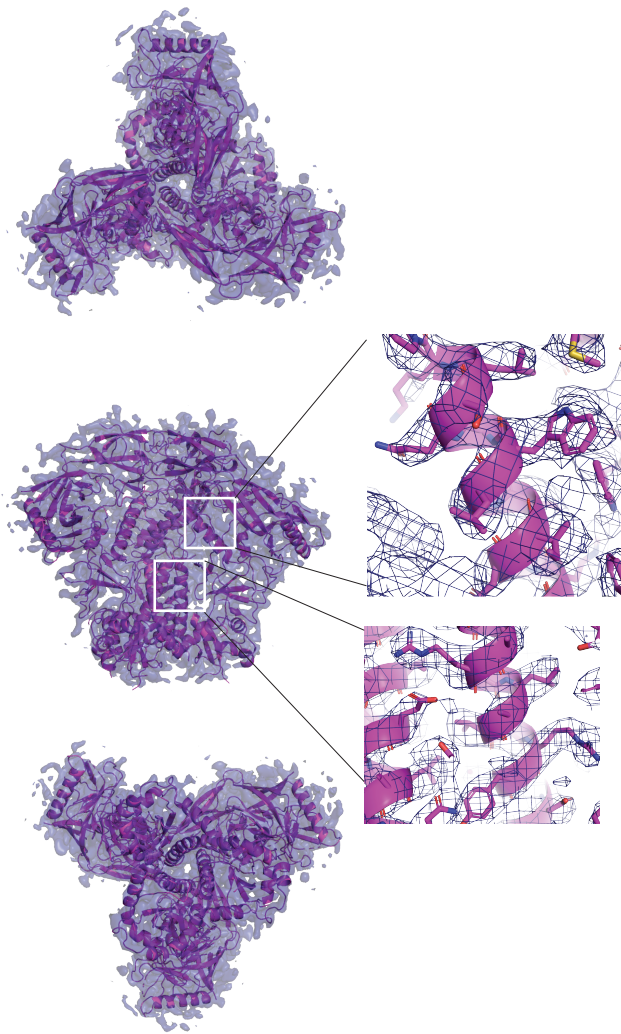
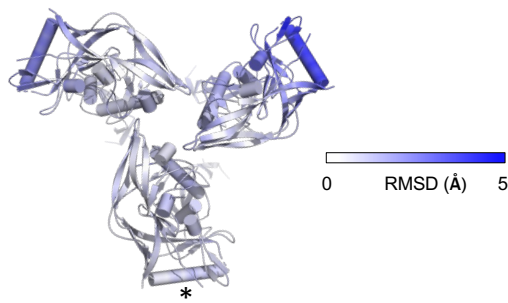
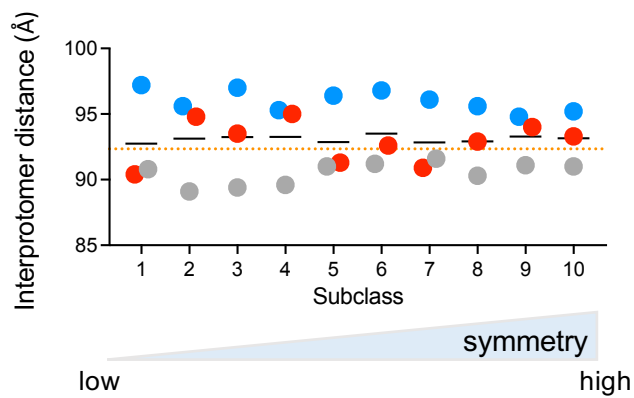


c' 975,399 particles
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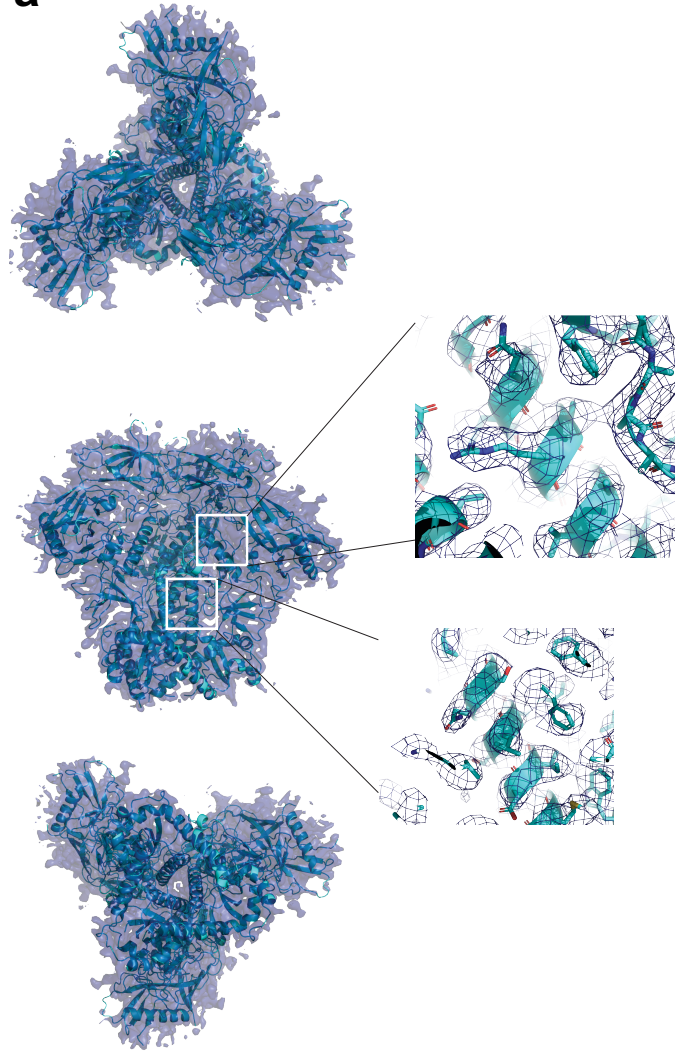
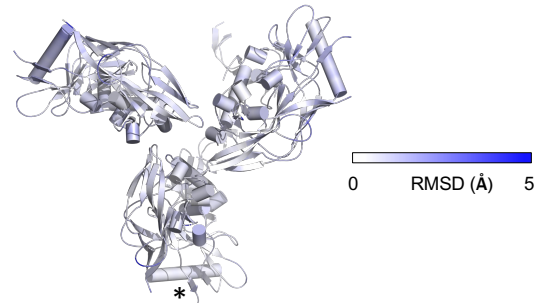
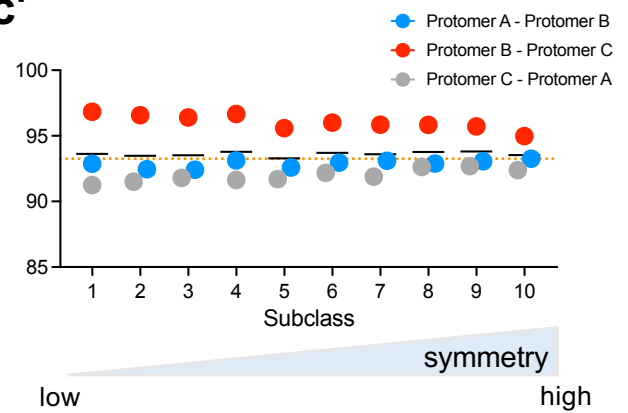


Supplementary Figure 7. Summary of cryo-EM data processing and validation of unliganded 1059 (left) and reference control unliganded BG505 (right) SOSIPs. **a,a'**, Representative micrograph and **b,b'**, Cryo-EM 2D class averages for 1059 or BG505 SOSIP cryo-EM data collection. **c,c'**, Gold-standard Fourier shell correlation (FSC) plot for the map. Estimate is reciprocal of spatial frequency at Fourier shell correlation value of 0.143 (horizontal dashed line). **d,d'**, Viewing direction distribution plot generated by CryoSPARC v4.4.1 for the final reconstruction of 1059 SOSIP (**d**) and BG505 SOSIP (**d'**). **e,e'**, Local resolution estimation of the 1059 / BG505 SOSIPs. **f-g,f'-g'**, Side and top views of rigid body fit for one protomer of an Env trimer from the BG505-IOMA-10-1074 model (PDB 5T3Z; IOMA and 10-1074 Fabs removed) shown in cartoon and SOSIP cryo-EM densities.

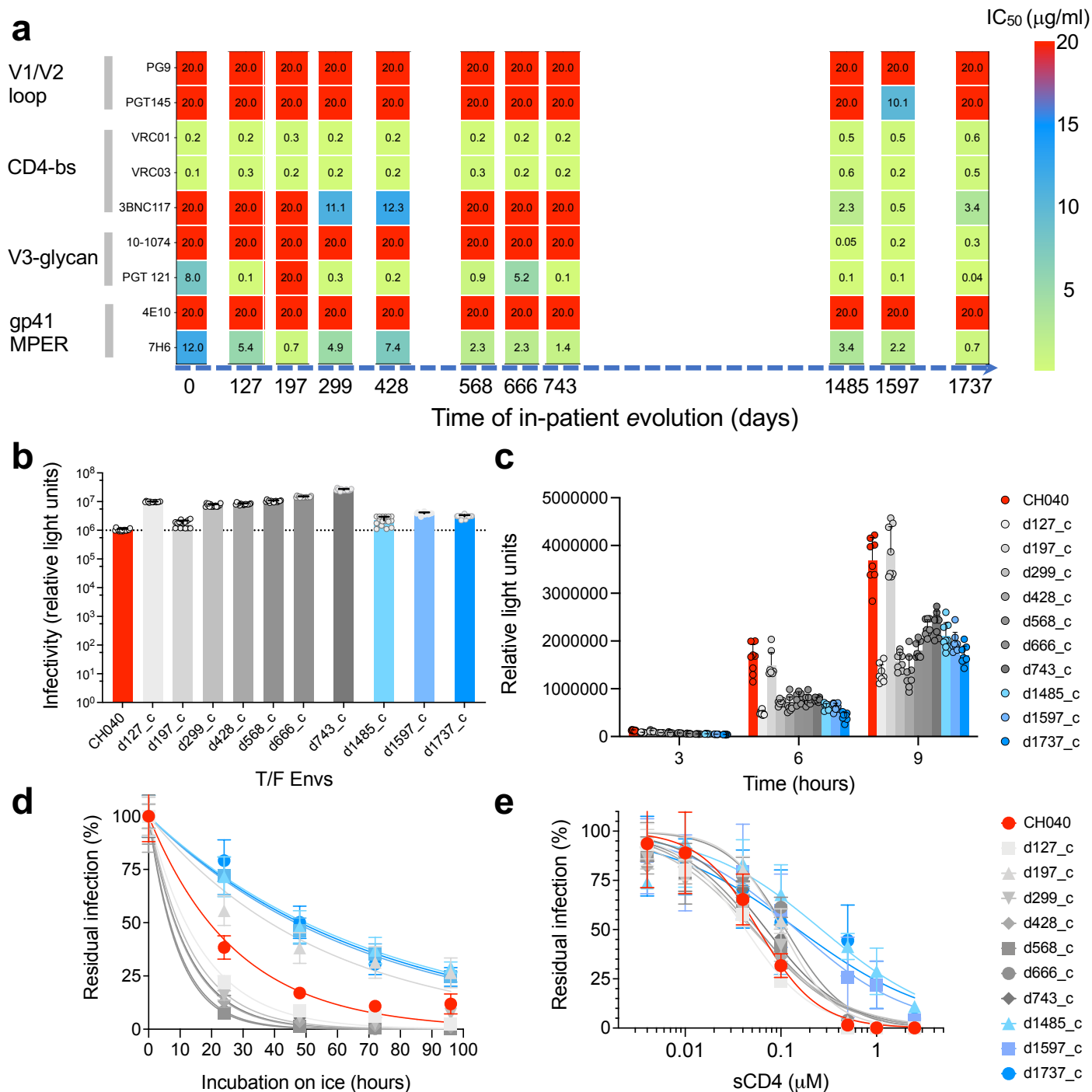
1059-SOSIP

a**b****c**

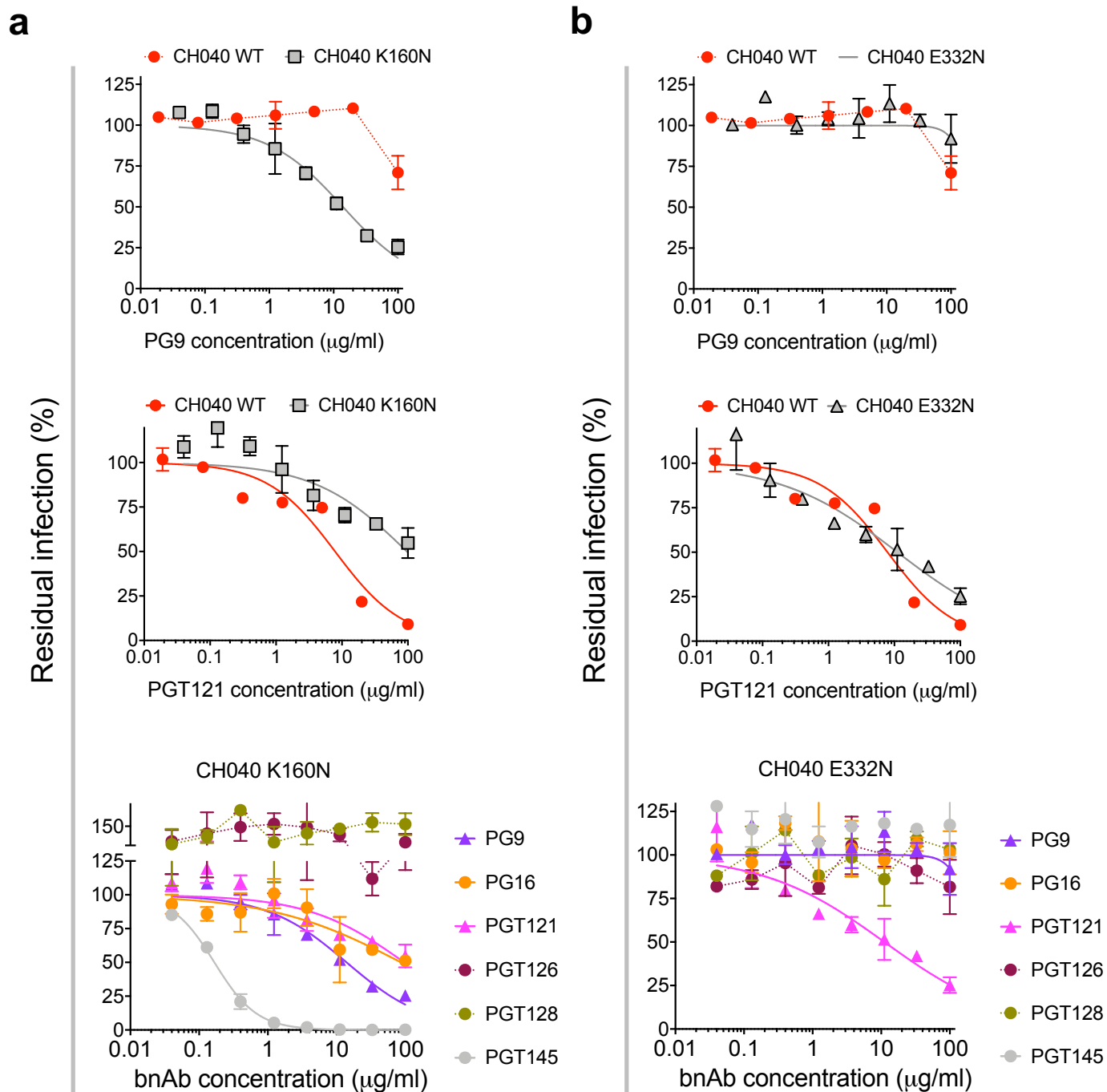
BG505-SOSIP

a'**b'****c'**

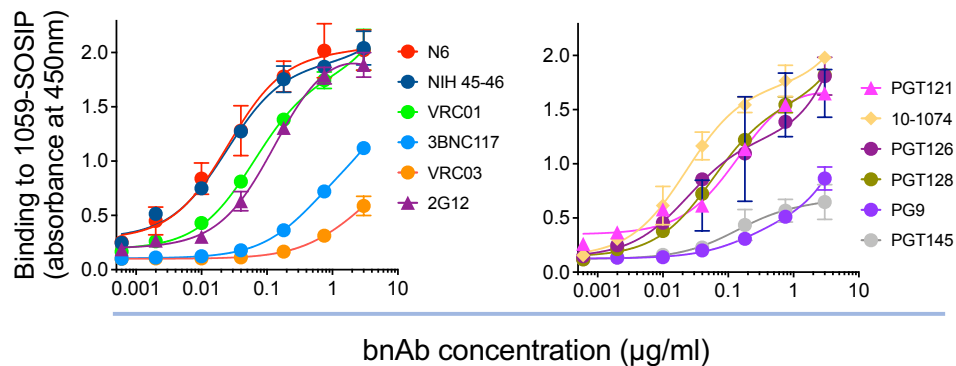
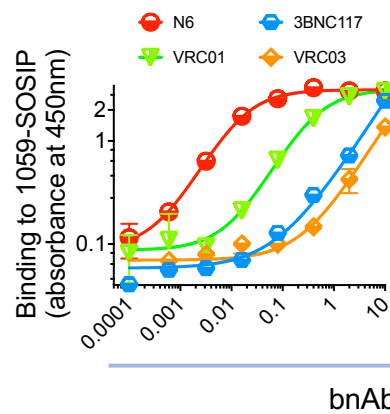
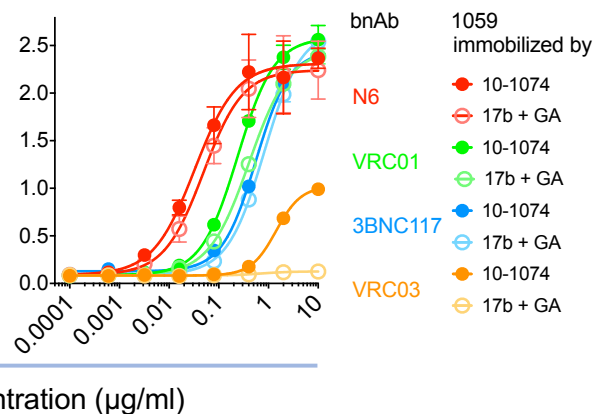
Supplementary Figure 8. Conformational flexibility and asymmetry of 1059-SOSIP. **a,a'**, Coordinate models fit in density maps for 1059 (left) and BG505 (right) SOSIP cryo-EM datasets. Views from the gp120 (top), side (middle) and gp41 (bottom) are shown. Two helices from each are shown zoomed in with side chains shown as sticks. **b,b'**, We assessed motions of protomers in 1059- and BG505-SOSIP Envs by measuring the distance between each residue in the 2 most distanced subclasses (out of 10 shown in Fig. 2b) of each SOSIP (i.e. 2 subclasses with the highest C α root mean square deviation between them). The Env residues were colored according to the distance between same residue in the two chosen conformations. Data processing for generating these subclasses is described in the Methods section. Number of particles used, and resolution of each sub-class model are provided in Extended Data Table 4. **c,c'**, Interprotomer distance analysis of the 10 sub-classes shown in Fig. 2b. Distances were measured between residue 343 (HXBc2 numbering corresponding to Arg in 1059-SOSIP or Gly in BG505-SOSIP) of different protomers, and the sub-classes were ordered according to their symmetry based on the sum of differences of the interprotomer distances from the geometric mean of the interprotomer distances as described in the Methods section.



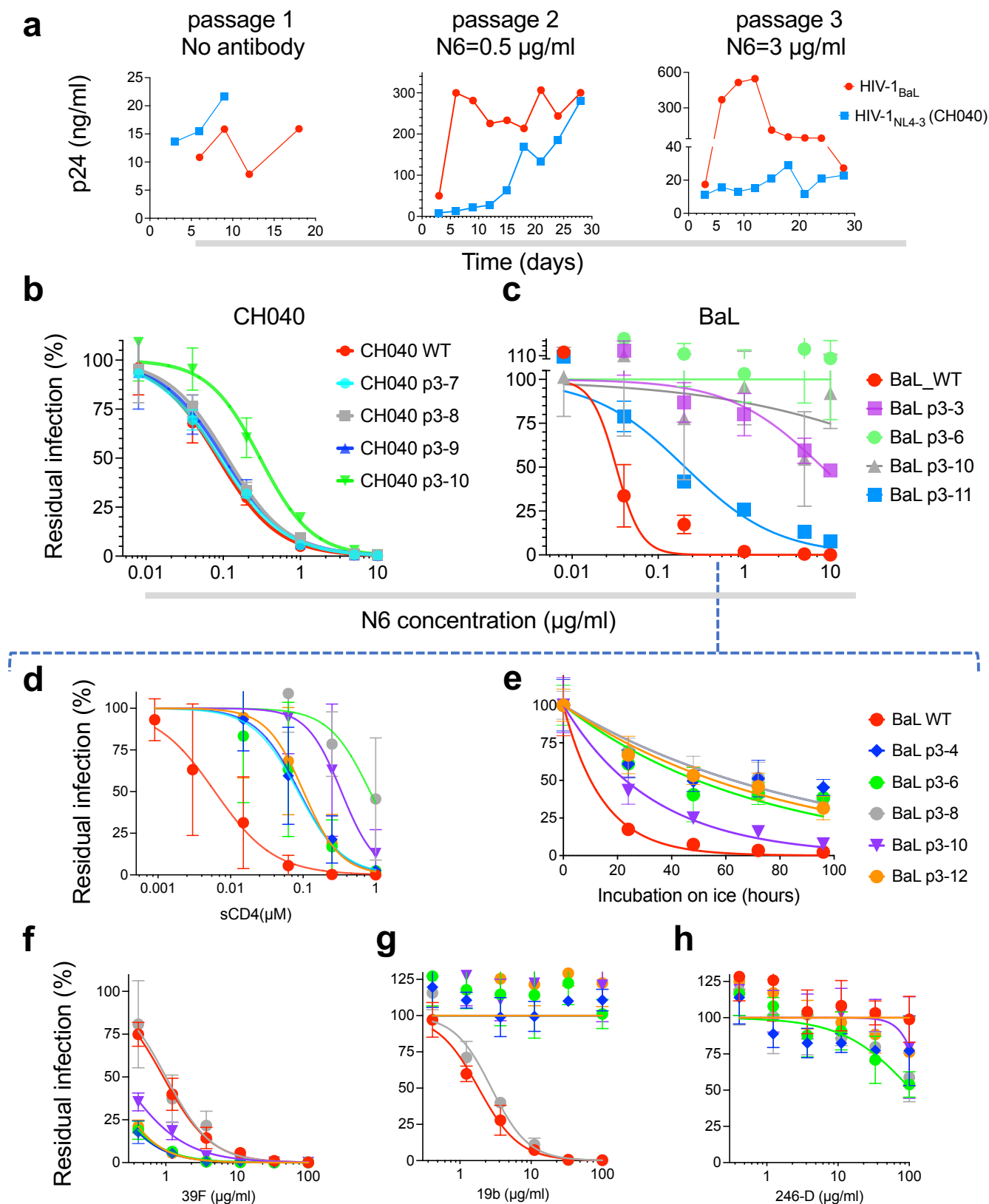
Supplementary Figure 9. Reconstructing the evolutionary pathways of (preexisting) multi-bnAb resistant T/F strain (CH040) in infected individual. **a**, Sensitivity of viruses pseudotyped with reconstructed consensus Envs to bnAbs targeting the five known sites of Env vulnerability. Envs from 10 different time points (day 127 to day 1737) were reconstructed based on consensus sequences after alignment and analysis of all available sequences for each time point (see Extended Data Table 2 and Supplementary Table 2). Indicated values are IC₅₀s in μg/ml and were used for Fig. 3d plots. **b**, Infectivity levels of reconstructed-Env pseudoviruses; 2ng p24 of each pseudovirus were used to infect Cf2Th-CD4/CCR5 target cells. For CH040, 2.5 ng p24 was used and the measurements were normalized to 2 ng p24. **c**, Cell-cell fusion activity. Env-expression plasmids of specified Envs were co-transfected with Tat-expression plasmid (5:1 Env:Tat ratio) into 293T cells and after 48-hours transfected cells were detached with PBS/5mM EDTA and incubated with TZM-bl cells. Extent of fusion was measured by firefly luciferase activity, which is expressed in the fused cells by Tat-mediated activation and used as a reporter. **d-e**, Sensitivity of reconstructed-Env pseudoviruses to cold exposure (**d**) and to sCD4 (**e**). Color codes for panels (**d**) and (**e**) are identical and shown on the right. Data are mean (relative light units or residual infection) ± s.d. of n = average (**a**, **d** and **e**) or representative (**b** and **c**) of 2 independent experiments each performed with 2-16 replicates.



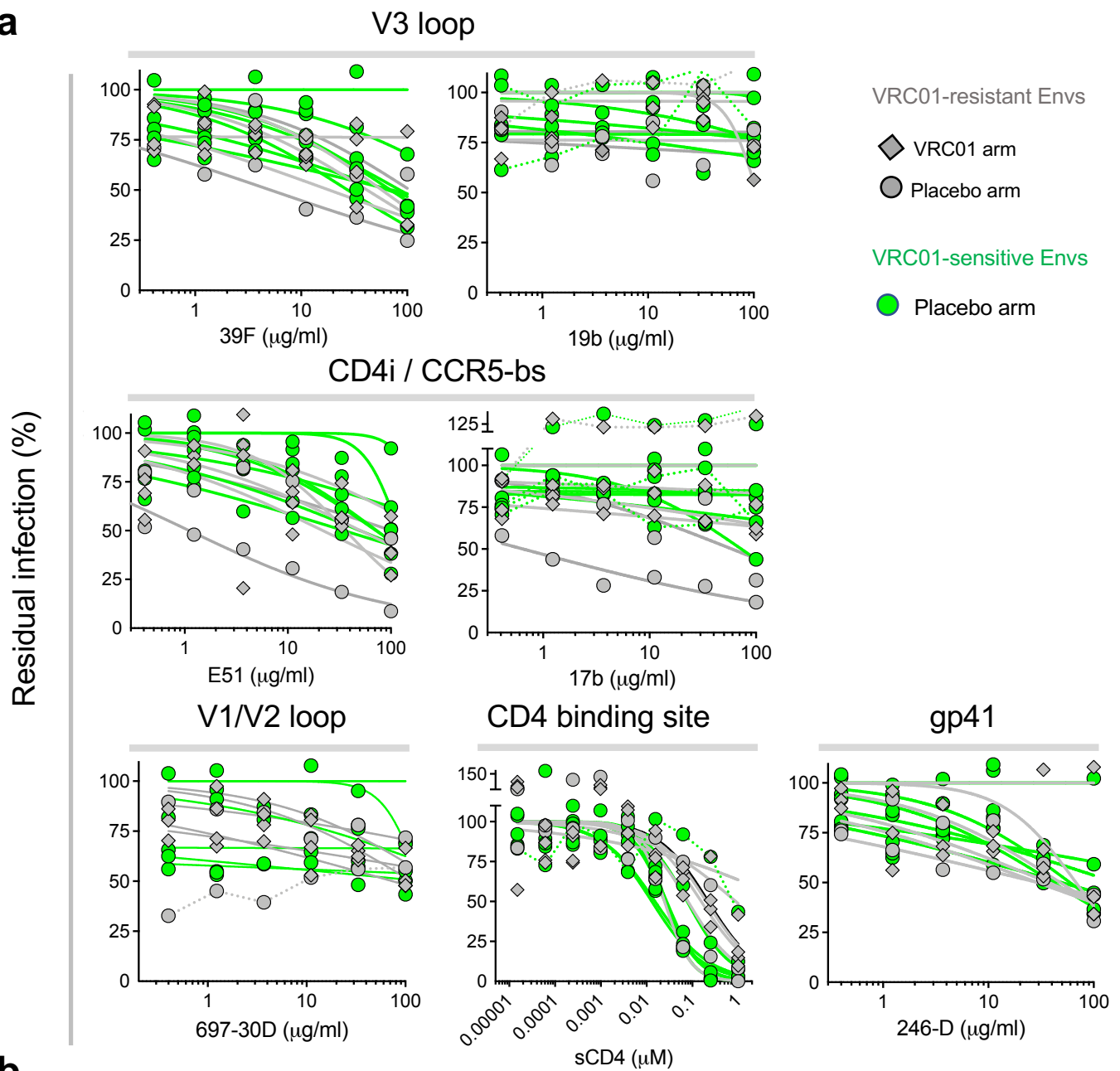
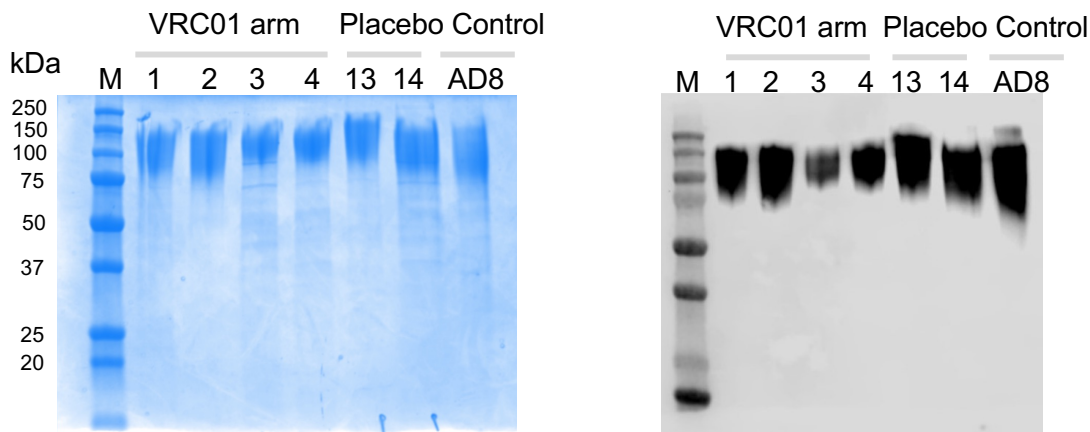
Supplementary Figure 10. Sensitivity of K160N and E332N variants of CH040 Env to different bnAbs. Effects of bnAbs targeting gp120 V1/V2 loop (PG9, PG16, and PGT145) and bnAbs targeting gp120 V3 glycan (PGT 121, PGT126, and PGT128) on the entry of pseudoviruses displaying the K160N (**a**) and E332N (**b**) CH040 Env variants. Data are mean values $\pm$ s.d. of representatives from $n = 2$ independent experiments performed in duplicates.

a**b****c**

Supplementary Figure 12. Antibody binding to soluble SOSIP trimers. a, We measured bnAb binding to directly immobilized soluble 1059-SOSIP trimer by ELISA using anti-human IgG conjugated to HRP. **b-c**, Binding of CD4bs bnAbs to 1059 SOSIP immobilized by *Galanthus nivalis* lectin (**b**), 10-1074 (**c**; closed circles) or 17b and crossed linked (**c** open circles). Data are mean values $\pm$ s.d. from $n = 2 - 4$ technically independent experiments.



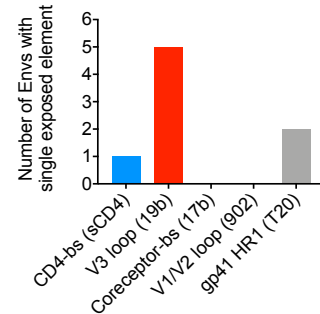
Supplementary Figure 13. *in vitro* adaptation of HIV-1 to N6. **a**, Levels of p24 in the supernatant of SupT1.R5 cells infected with HIV-1_{NL4-3} (CH040) or HIV-1_{BaL} during HIV-1 replication (passage 1), and adaptation to 0.5 µg/ml (passage 2) or 3 µg/ml (passage 3) N6. **b,c**, Sensitivity of Envs from single clones of adapted HIV-1_{NL4-3} (CH040) (**b**) or HIV-1_{BaL} (**c**) to N6 measured using a single-round infection assay. **d-h**, Sensitivity of the most N6-resistant Envs, isolated as single clones of N6-adapted HIV-1_{BaL}, to different Env ligands that preferentially recognize intermediate and open Env conformations (**d,f-h**), and to exposure to cold (**e**). Color code of the different clones in panels **d-h** are shown on the right of panel **e**. Data are mean values of 2-technically independent experiments (**a**) or mean values $\pm$ s.d. of $n = 2$ independent experiments, each performed in duplicates (**b-h**), except for the BaL p3-3 and BaL p3-11 clones in panel **c** that were still sensitive to N6 and were tested only once in duplicate.

a**b**

Supplementary Figure 14. Sensitivity of HIV-1 Envs, isolated from the antibody (VRC01)-mediated prevention (AMP) trial, to different Env ligands that preferentially neutralize Env open conformation and gp120 expression of Envs from VRC01-resistant strains. a, Sensitivity of VRC01-resistant (grey) and VRC01-sensitive Envs (green) to internal-epitope antibodies and soluble CD4. Data are mean values; $n = 2-5$ independent experiments, each performed with 2-4 replicates. **b,** SDS-PAGE (left) and western blot (right) of gp120 of VRC01-resistant HIV-1 strains. gp120 IDs are the same as those used in Fig. 5f-g. Gel and blot are representatives of $n = 2$ independent experiments.

Supplementary Table 1. Sensitivity of WT and intermediates HIV-1_{JRFL} Envs to internal-epitope ligands

JR-FL*	Relative infectivity (%)	IC ₅₀					Counts (only single Env element <10%)				
		sCD4 (nM)	19b (µg/ml)	17b (µg/ml)	902090 (µg/ml)	T20 (nM)	sCD4<2	19b<5	17b<15	902090<10	T20<0.23
		Average	Average	Average	Average	Average					
WT	100	19.04	50	150	100	2.3	0	0	0	0	0
V127A	3	1.39	0.11	76.03	100	1.29	0	0	0	0	0
I154A	51	1.09	2.33	0.33	17.89	4.16	0	0	0	0	0
N156A	19	1.02	0.56	31.2	~5	85.01	0	0	0	0	0
L175A	172	0.91	2.52	60.18	5.21	4.25	0	0	0	0	0
Y177A	56	1.66	0.67	21.26	100	2.95	0	0	0	0	0
V181I	280	41.86	50	150	100	0.67	0	0	0	0	0
V181I+L193A	130	0.39	0.05	0.43	17.1	1.28	0	0	0	0	0
I184L+L193A	60	0.82	0.018	0.44	16.6	3.29	0	0	0	0	0
Y191A	87	1	6.75	65.35	26.43	3.76	1	0	0	0	0
Y191A+I423A	33	0.82	0.044	11.9	100	1.32	0	0	0	0	0
Y191A+Q428A	38	0.64	0.67	19.69	2.27	0.79	0	0	0	0	0
L193A	16	1.98	0.19	0.65	7.56	5.15	0	0	0	0	0
L193A + I201W	36	1.27	0.13	3.67	9.26	1.22	0	0	0	0	0
L193A + I423V	1012	0.67	0.04	0.29	3.9	2.1	0	0	0	0	0
L193A + I423V-D674N	63	0.37	0.027	0.18	7.49	1.33	0	0	0	0	0
L193A + I423V-Δ733	1571	2.00	0.38	7.39	25.6	7.16	0	0	0	0	0
L193A + I423V-Δ765	655	0.68	0.09	3.3	12.78	1.45	0	0	0	0	0
L193G	25	0.76	0.11	0.76	0.84	0.72	0	0	0	0	0
L193K	17	0.75	0.02	0.09	1.20	2.69	0	0	0	0	0
L193I	47	11.42	50.00	150	100	5.48	0	0	0	0	0
L193V	70	5.21	13.25	150	55.96	2.36	0	0	0	0	0
L193E	43	0.61	0.11	1.05	1.60	0.39	0	0	0	0	0
L193D	7	0.32	0.09	1.34	3.01	3.50	0	0	0	0	0
L193M	39	2.60	50.00	150	43.96	0.27	0	0	0	0	0
L193S	16	0.40	0.08	0.60	2.60	1.82	0	0	0	0	0
L193R	18	0.23	0.02	0.26	0.83	0.67	0	0	0	0	0
L193W	69	0.22	1.16	2.26	13.53	3.75	0	0	0	0	0
L193Q	18	1.17	0.12	0.66	3.58	2.12	0	0	0	0	0
L193F	70	3.20	23.84	150	11.24	2.71	0	0	0	0	0
L193H	8	0.33	0.06	0.81	3.72	0.83	0	0	0	0	0
L193T	22	0.93	0.05	0.98	0.68	1.87	0	0	0	0	0
L193Y	17	0.37	0.14	0.29	4.98	1.10	0	0	0	0	0
L193P	16	0.41	0.13	0.97	5.27	4.86	0	0	0	0	0
T320R	76	3.14	0.28	41.95	100	3.92	0	1	0	0	0
S375W	9	6.24	50	150	100	0.33	0	0	0	0	0
I420A	159	60.24	3.08	150	2.03	0.66	0	0	0	0	0
K421A	199	1.05	4.8	9.59	27.19	0.79	0	0	0	0	0
Q422A	72	1.11	2.73	150	22.76	2.14	0	0	0	0	0
Q422D	7	0.89	0.24	5.94	6.56	0.67	0	0	0	0	0
Q422N	7	6.59	1.12	45.86	28.18	0.73	0	1	0	0	0
I423A	696	1.22	0.1	39.22	1.57	0.21	0	0	0	0	0
I423V	943	19.92	47.8	150	100	1.88	0	0	0	0	0
I424A	27	21.74	0.013	150	16.06	2.73	0	1	0	0	0
N425A	590	335.4	50	150	100	0.27	0	0	0	0	0
M426A	214	254.2	50	150	100	0.22	0	0	0	0	1
Q428A	532	135.4	50	150	100	0.18	0	0	0	0	1
E429A	1127	13.7	50	150	24.65	2.9	0	0	0	0	0
V430A	18	500	50	150	68.32	1.35	0	0	0	0	0
G431A	752	25.27	50	150	59.34	2.13	0	0	0	0	0
K432A	579	29.89	50	150	100	2.56	0	0	0	0	0
A433G	2084	14.46	9.49	150	21.15	1.45	0	0	0	0	0
M434A	10	7.2	0.84	69.58	22.51	1.77	0	1	0	0	0
Y435A	9	46.27	0.71	150	15.87	1.29	0	1	0	0	0
Average WT infectivity (relative light units)											
Average infectivity (%)											
Range infectivity (%)											
Criteria											
Number of variants out of 53 in each group											
% of variants meeting criteria in each group (Number of variants in each group / 53 *100)											
% of variants in each group from the total (Number of variants in each group / 115 *100)											
Number of single site exposures											
Criteria (only one of the following)											
Number of variants											



* Distribution of exposed elements among 53 functional Env intermediates. We selected HIV-1_{JRFL} Env variants, which are enriched in intermediates based on prior studies (this is not a random selection). WT and 53 Env mutants were analyzed for sensitivity to ligands that preferentially recognize open Env conformations (17b, 19b, sCD4, 902 directed against the V1/V2 loop, and T20). Env mutants that were > 10 times more sensitive than WT (IC₅₀ mutant / IC₅₀ WT < 0.1) were identified and their prevalence was calculated. IC₅₀ of some Env mutants has been published previously (Herschhorn et al. mBio 2016; Nat Commun 2017).

* Env variants that showed >10 fold hypersensitivity to any of the ligands (17b, 19b, sCD4, 902 directed against the V1/V2 loop, and T20) are in blue.

Supplementary Table 2. HIV-1 transmitted/founder Envs

#	Env ID*	Env clone**	Tier	Fiebig Stage	Accession Number
1	1012	p1012.TC21.3257	1B or 2	III	EU289184
2		p1006_11.C3.1601	2	III	EU289183
3	1054	p1054.TC4.1499	2	II	EU289185
4		p1056.TA11.1826	1B or 2	II	EU289186
5	1058	p1058_11.B11.1550	2	IV	EU289187
6	1059	p1059_09.A4.1460	2	III	EU289188
7		p62357_14.D3.4589	2	II	EU289189
8	6244	p6244_13.B5.4567	2	II	EU289191
9		p6240_08.TA5.4622	2	II	EU289190
10	63358	p63358.p3.4013	2	II	EU289192
11	CH040***	p700010040.C9.4520	2	II	EU289193
12		p700010058.A4.4375	2	III	EU289194
13		p9014_01.TB1.4769	2	II	EU289195
14	9021	p9021_14.B2.4571	2	II	EU289196
15	PRB926	pPRB926_04.A9.4237	2	II	EU289197
16		pPRB931_06.TC3.4930	2	III	EU289198
17	PRB958	pPRB958_06.TB1.4305	2	III	EU289199
18	SC05	pSC05.8C11.2344	2	II	EU289200
19	SC45	pSC45.4B5.2631	2	II	EU289201
20	WEAU	pWEAUd15.410.5017	2	II	EU289202

* Env ID is shown for the 13 T/F Env clones that were selected for testing in the current study

** All Env-expressing plasmids (Env clones) of T/F strains were kindly provide by Drs. Beatrice H. Hahn, Brandon F. Keele and George M. Shaw through the NIH AIDS Reagent Program

*** An infectious molecular clone is available (pCH040.c/2625; Catalog number 11740); subject identifier 700010040

Supplementary Table 3. Neutralization preferences of different ligands to Env conformations and the effects of experimental condition on HIV-1 entry



	Closed	Functional intermediates*	Open
Cold exposure	Resistant	Sensitive	Sensitive
sCD4 / CD4 mimetics	Moderately sensitive	Sensitive	Hypersensitive
Conformational blockers	Hypersensitive	Moderately resistant	Resistant
CD4-independent infection	Low	Moderate	Relatively high
VRC01	Sensitive	Relatively resistant	Resistant**
VRC03	Sensitive	Relatively resistant	Resistant**
3BNC117	Sensitive	Relatively resistant	Resistant**
4E10	Moderately sensitive	Sensitive	Hypersensitive
7H6	Sensitive	Sensitive	Hypersensitive
PGT151	Sensitive	Sensitive	Hypersensitive
VRC034	Relatively sensitive	Sensitive	Sensitive
PG9	Sensitive	Relatively resistant	Resistant
17b	Resistant	Relatively sensitive	Sensitive
19b	Resistant	Relatively sensitive	Sensitive
Patient serum	Generally resistant	Sensitive	Hypersensitive
T20	Sensitive	Sensitive	Hypersensitive

*By definition an intermediate phenotype can result from intermediate sensitivity to Env ligands that target internal epitopes or to cold, or it can result from sensitivity to some of these ligands/cold. In addition, resistance to a specific inhibitor can be the result of changes in the epitope/binding site and not necessary changes in Env conformation but resistance of multiple molecules targeting the same site is likely related to conformational changes.

** lab-adapted HIV-1 Envs are sensitive to these bnAbs, but Envs of primary strains that are engineered to be open could potentially be resistant.

Supplementary Table 4. Asymmetry calculation

1059 SOSIP sub-classes

	AB	BC	CA	sum	geomean	GeoMean 1059	$\Sigma(\text{abs}(X - \text{gmean}))$
	97.2	90.4	90.8	278.4	92.75	92.47	8.47
	95.6	94.8	89.1	279.5	93.12		8.83
	97	93.5	89.4	279.9	93.25		8.63
	95.3	95	89.6	279.9	93.26		8.23
	96.4	91.3	91	278.7	92.87		6.57
	96.8	92.6	91.2	280.6	93.50		5.73
	96.1	90.9	91.6	278.6	92.84		6.07
	95.6	92.9	90.3	278.8	92.91		5.73
	94.8	94	91.1	279.9	93.29		5.23
	95.2	93.3	91	279.5	93.15		5.03
						Average	6.85
						GeoMean	6.70
						STDEV	1.52

BG505 SOSIP sub classes

	AB	BC	CA	sum	geomean	GeoMean BG505	$\Sigma(\text{abs}(X - \text{gmean}))$
	92.88	96.84	91.24	280.96	93.62	93.17	5.89
	92.45	96.57	91.5	280.52	93.48		5.79
	92.42	96.4	91.8	280.62	93.52		5.35
	93.12	96.66	91.64	281.42	93.78		5.07
	92.59	95.59	91.71	279.89	93.28		4.46
	92.96	96.01	92.18	281.15	93.70		4.04
	93.1	95.85	91.89	280.84	93.60		4.03
	92.89	95.84	92.63	281.36	93.78		3.49
	93.06	95.72	92.69	281.47	93.81		3.14
	93.25	94.98	92.39	280.62	93.53		2.67
						Average	3.10
						GeoMean	3.08
						STDEV	0.42

Different SOSIP structures

	AB	BC	CA	sum	geomean
4ZMJ	91.7	91.7	91.7	275.1	91.70
5TZ3	91.9	91.9	91.9	275.7	91.90
5V8L	92.1	92.1	92.1	276.3	92.10
5ACO	91.8	91.8	91.7	275.3	91.77
5VN3	91.6	91.6	91.5	274.7	91.57
5U1F	94.8	94.4	94.4	283.6	94.53
* BG505-Env	95.64	92.27	91.66	183.93	93.17
* 1059-Env	95.26	92.53	89.7	277.49	92.47
5FUU	95.9	91	89.4	276.3	92.06

* Current study

Supplementary Table 5. Subclassification of unliganded 1059- and BG505-SOSIP cryo-EM datasets. The table shows the number of particles in each class and the resolution of each of the 10 structures after subclassification.

Unliganded 1059-SOSIP			Unliganded BG505-SOSIP		
Class ID	Particles	Resolution (Å)	Class ID	Particles	Resolution (Å)
1	53,177	3.93	1	84,089	4.16
2	71,533	3.79	2	64,582	4.22
3	57,181	3.82	3	69,147	4.24
4	57,278	3.96	4	81,171	4.14
5	45,804	4.04	5	278,726	3.93
6	69,801	3.74	6	86,261	4.11
7	57,124	4.06	7	85,273	4.14
8	50,430	4.01	8	79,022	4.22
9	55,435	4.12	9	81,500	4.18
10	219,825	3.72	10	65,628	4.23
Total	737,588		Total	975,399	

Supplementary Table 6. Constructing consensus HIV-1 Env sequences of 10 time points during in-patient evolution of CH040. Analysis of the dominant changes in consensus sequences for each time point during evolution of HIV-1 Envs in patient CH040.

	Time points (days)*															
	<16	d16	d32	d61	d127**	d197	d299	d428	d568	d666	d743	d1485	d1513	d1569	d1597	d1737
# seq available	7	22	33	28	67	32	39	37	34	45	25	30			35	41
Dominant changes (>50% strains except when indicated)	none	none	none	none												
									G135E	G135E						
									N136K	N136K						
										V137G (49%)						
								N139T			N139T	N139T				N139T
																N142M
																S143G
							N144K		N144T							
									G146E						G146E	G146E
					E147K	E147G		E147T	E147K		E147T	E147T			E147T	E147T
								M148L			M148L	M148L			M148L (inset)	
												K160R			K160R	K160R
									I165V			I165M			I165M	I165M
												K166Q			K166Q	K166Q
															R-to-S (188?)	
												I234N			I234N	I234N
							T295N		T295N	T295N	T295N	T295N			T295N	T295N
							N300H		N300H	N300H	N300H					
												P308H			P308H	P308H
												D321A			D321G	D321A
								T323I	T323I	T323I	T323I	T323I			T323I	T323I
						R327K										
								Y330S				Y330H			Y330H	Y330H
						E332K		E332K				E332N			E332N	E332N
												N334S			N334S	N334S
															S340N	
										E347G						
										Q352K						
															R363H	R363H
															W401G	
												K405E			K405N	K405N
															D409N	
								G412D		G412D						
								I415M		I415M		I415T			I415T	I415T
									K419R	K419R	K419R	K419R			K419R	K419R
																G429E
								K442I	I422E (42%)	I442Q (48%)	K442I	K442I			K442I	K442I
												R444K			R444K	R444K
												E463K			E463K	E463K
															D636N	D636N
															L663W	
															L721F	
							A754T	A754T	A754T	A754T		A754T			A754T	A754T
															V778A	
												R770H				
															N809K	
							I820T	I820T	I820T	I820T						
												C837G			C837G	C837G
												L841R			L841R	L841R

* Sequences from 10 time points highlighted in yellow were used for reconstruction of consensus viruses

** Consensus of sequences from day 127 and day 148 contained a single change and they were combined

Supplementary Table 7. Env sequences used for building consensus sequences for 10 time points: day 127 (d127) - day 1737 (d1737)

	d127*	d197	d299	d428	d568	d666	d743	d1485	d1597	d1737
# seq available	67	32	39	37	34	45	25	30	35	41
Dominant changes (>50% strains except when indicated)					G135E N136K	G135E N136K				
						V137G (49%)				
				N139T			N139T	N139T		N139T
										N142M
										S143G
			N144K		N144T					
					G146E			G146E	G146E	G146E
	E147K	E147G		E147T	E147K		E147T	E147T	E147T	E147T
				M148L			M148L	M148L	M148L (inset)	
								K160R	K160R	K160R
					I165V			I165M	I165M	I165M
								K166Q	K166Q	K166Q
									R-to-S (188?)	
								I234N	I234N	I234N
			T295N		T295N	T295N	T295N	T295N	T295N	T295N
			N300H		N300H	N300H	N300H			
								P308H	P308H	P308H
								D321A	D321G	D321A
				T323I	T323I	T323I	T323I	T323I	T323I	T323I
		R327K								
				Y330S				Y330H	Y330H	Y330H
		E332K		E332K				E332N	E332N	E332N
								N334S	N334S	N334S
									S340N	
						E347G				
						Q352K				
									R363H	R363H
									W401G	
								K405E	K405N	K405N
									D409N	
				G412D		G412D				
				I415M		I415M		I415T	I415T	I415T
					K419R	K419R	K419R	K419R	K419R	K419R
										G429E
				K442I	I422E (42%)	I442Q (48%)	K442I	K442I	K442I	K442I
								R444K	R444K	R444K
								E463K	E463K	E463K
									D636N	D636N
									L663W	
									L721F	
			A754T	A754T	A754T	A754T		A754T	A754T	A754T
									V778A	
								R770H		
									N809K	
			I820T	I820T	I820T	I820T				
								C837G	C837G	C837G
								L841R	L841R	L841R

* Consensus of sequences from day 127 and day 148 contained a single change and they were combined

Consensus

1. B.US.2006.700010040_C9_4520.EU289193
2. B.US.2006.CH0040_3_d0127_ipe032_27_49.MG900133
3. B.US.2006.CH0040_3_d0127_ipe032_2_02.MG900134
4. B.US.2006.CH0040_3_d0127_ipe032_2_03.MG900135
5. B.US.2006.CH0040_3_d0127_ipe032_2_04.MG900136
6. B.US.2006.CH0040_3_d0127_ipe032_2_06.MG900137
7. B.US.2006.CH0040_3_d0127_ipe032_2_10.MG900138
8. B.US.2006.CH0040_3_d0127_ipe032_2_11.MG900139
9. B.US.2006.CH0040_3_d0127_ipe032_2_13.MG900140
10. B.US.2006.CH0040_3_d0127_ipe032_2_14.MG900141
11. B.US.2006.CH0040_3_d0127_ipe032_2_15.MG900142
12. B.US.2006.CH0040_3_d0127_ipe032_2_17.MG900143
13. B.US.2006.CH0040_3_d0127_ipe032_2_18.MG900144
14. B.US.2006.CH0040_3_d0127_ipe032_2_19.MG900145
15. B.US.2006.CH0040_3_d0127_ipe032_2_20.MG900146
16. B.US.2006.CH0040_3_d0127_ipe032_2_21.MG900147
17. B.US.2006.CH0040_3_d0127_ipe032_2_22.MG900148
18. B.US.2006.CH0040_3_d0127_ipe032_2_24.MG900149
19. B.US.2006.CH0040_3_d0127_ipe032_2_26.MG900150
20. B.US.2006.CH0040_3_d0127_ipe032_2_28.MG900151
21. B.US.2006.CH0040_3_d0127_ipe032_2_29.MG900152
22. B.US.2006.CH0040_3_d0127_ipe032_2_31.MG900153
23. B.US.2006.CH0040_3_d0127_ipe032_2_32.MG900154
24. B.US.2006.CH0040_3_d0127_ipe032_2_36.MG900155
25. B.US.2006.CH0040_3_d0127_ipe032_2_38.MG900156
26. B.US.2006.CH0040_3_d0127_ipe032_2_39.MG900157
27. B.US.2006.CH0040_3_d0127_ipe032_2_41.MG900158
28. B.US.2006.CH0040_3_d0127_ipe032_2_42.MG900159
29. B.US.2006.CH0040_3_d0127_ipe032_2_43.MG900160
30. B.US.2006.CH0040_3_d0127_ipe032_2_46.MG900161
31. B.US.2006.CH0040_3_d0127_ipe032_2_51.MG900162
32. B.US.2006.CH0040_3_d0127_ipe032_2_52.MG900163
33. B.US.2006.CH0040_3_d0127_ipe032_2_54.MG900164
34. B.US.2006.CH0040_3_d0127_ipe032_2_56.MG900165
35. B.US.2006.CH0040_3_d0127_ipe032_2_57.MG900166
36. B.US.2006.CH0040_3_d0127_ipe032_2_58.MG900167
37. B.US.2006.CH0040_3_d0127_ipe032_2_59.MG900168
38. B.US.2006.CH0040_3_d0127_ipe032_2_61.MG900169
39. B.US.2006.CH0040_3_d0127_ipe032_3_01.MG900170
40. B.US.2006.CH0040_3_d0127_ipe032_81_50.MG900171
41. B.US.2006.CH0040_3_d0148_ipe032_2_01.MG900172
42. B.US.2006.CH0040_3_d0148_ipe032_2_02.MG900173
43. B.US.2006.CH0040_3_d0148_ipe032_2_03.MG900174
44. B.US.2006.CH0040_3_d0148_ipe032_2_05.MG900175
45. B.US.2006.CH0040_3_d0148_ipe032_2_08.MG900176
46. B.US.2006.CH0040_3_d0148_ipe032_2_11.MG900177
47. B.US.2006.CH0040_3_d0148_ipe032_2_13.MG900178
48. B.US.2006.CH0040_3_d0148_ipe032_2_14.MG900179
49. B.US.2006.CH0040_3_d0148_ipe032_2_15.MG900180
50. B.US.2006.CH0040_3_d0148_ipe032_2_16.MG900181
51. B.US.2006.CH0040_3_d0148_ipe032_2_18.MG900182
52. B.US.2006.CH0040_3_d0148_ipe032_2_21.MG900183
53. B.US.2006.CH0040_3_d0148_ipe032_2_32.MG900184
54. B.US.2006.CH0040_3_d0148_ipe032_2_35.MG900185
55. B.US.2006.CH0040_3_d0148_ipe032_2_36.MG900186
56. B.US.2006.CH0040_3_d0148_ipe032_2_43.MG900187
57. B.US.2006.CH0040_3_d0148_ipe032_2_46.MG900188
58. B.US.2006.CH0040_3_d0148_ipe032_2_48.MG900189
59. B.US.2006.CH0040_3_d0148_ipe032_2_51.MG900190
60. B.US.2006.CH0040_3_d0148_ipe032_2_52.MG900191
61. B.US.2006.CH0040_3_d0148_ipe032_2_53.MG900192
62. B.US.2006.CH0040_3_d0148_ipe032_2_55.MG900193
63. B.US.2006.CH0040_3_d0148_ipe032_2_58.MG900194
64. B.US.2006.CH0040_3_d0148_ipe032_2_61.MG900195

- 65.** B.US.2006.CH0040_3_d0148_ipe032_2_64.MG900196
- 66.** B.US.2006.CH0040_3_d0148_ipe032_2_65.MG900197
- 67.** B.US.2006.CH0040_3_d0148_ipe032_2_66.MG900198
- 68.** B.US.2006.CH0040_3_d0148_ipe032_9_42.MG900199

[illegible][illegible]

53	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
54	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
55	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
56	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
57	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
58	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
59	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
60	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
61	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
62	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
63	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
64	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
65	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
66	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
67	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
68	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60

DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK

1	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
2	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
3	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
4	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
5	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
6	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
7	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
8	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
9	DTEAHNVWATHACVPTDPNPQEVKLKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
10	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
11	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
12	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
13	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
14	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
15	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
16	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
17	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
18	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
19	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
20	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
21	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
22	DTEA-----PQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	105
23	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
24	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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26	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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31	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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35	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
36	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
37	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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62	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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66	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
67	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
68	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120

LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL

1	LTPLCVTLNCTDLGNVTNTT --- NSNGEMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
2	LTPLCVTLNCTDLGKVTNTT --- NSNGKMMMEKGDV - NCSFKITTDIKDRTRKEYALFYKL	176
3	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
4	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
5	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
6	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
7	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
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9	LTPLCVTLNCTDLGNVTNTT --- NSNGGMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
10	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
11	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
12	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177
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14	LTPLCVTLNCTDLGNVTNTT --- - NSKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	175
15	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFY - -	175
16	LTPLCVTLNCTDLGNVTNTT --- NSNGKMMMEKGEVKNC SFKITTDIKDRTRKEYALFYKL	177

[illegible]

[illegible]

54	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
55	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
56	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
57	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
58	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
59	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	228
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61	DVVPIND	-----	TRYRLVSCNTSVITQACPKISFEPIPIHYCAPAGFAILKCNDKQFI	230
62	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
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67	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	228
68	DVVPIND	-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230

GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI

1	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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6	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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8	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
9	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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13	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
14	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	288
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16	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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21	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
22	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	273
23	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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34	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
35	GTGPCTNVSTVQCTHGIRPVVSTQLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290

36	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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38	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	288
39	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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41	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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60	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAKEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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67	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	288
68	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290

TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N

1	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
2	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	348
3	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
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6	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
7	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
8	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
9	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
10	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
11	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
12	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
13	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
14	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	347
15	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	317
16	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349
17	TCTRPNNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKLVEKLRQY - N	349

[illegible]

KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND-TKGSHTNGTLILPCK

[illegible]

55	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLILPCK	408
56	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNDTLMLPCK	408
57	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLTLPCK	408
58	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLKL PCK	408
59	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLMLPCK	406
60	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNDTLMLPCK	408
61	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLILPCK	408
62	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLILPCK	408
63	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLILPCK	408
64	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNDTLMLPCK	408
65	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNDTLMLPCK	408
66	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNDTLMLPCK	408
67	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNGTLILPCK	406
68	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNDTLMLPCK	408

IKQIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG - YESNETDEIFRPGGGDMRD

1	IKQIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG	-	YESNETDEIFRPGGGDMRD	467
2	IKQIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG	-	YESNETDEIFRPGGGDMRD	466
3	IKQIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG	-	YESNETDEIFRPGGGDMRD	467
4	IKQIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG	-	YESNETDEIFRPGGGDMRD	467
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68	IKQIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467

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Printed from SnapGene®: Nov 28, 2020 5:03 PM Page 15

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[illegible]

[illegible]

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61	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRS	NPLVNGFLAL	IWSDLRSLCLFSYHRLRDLLL	766
62	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRSD	PLVNGFLAL	IWSDLRSLCLFSYHRLRDLLL	766
63	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRSD	PLVNGFLAL	IWSDLRSLCLFSYHRLRDLLL	766
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65	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRSD	PLVNGFL	TLIWSDLRSLCLFSYHRLRDLLL	766
66	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRSD	PLVNGFL	TLIWSDLRSLCLFSYHRLRDLLL	765
67	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRSD	PLVNGFLAL	IWSDLRSLCLFSYHRLRDLLL	764
68	FQTHLPAQRGPD	RPE	GIGEE	GGERDRDRSD	PLVNGFL	TLIWSDLRSLCLFSYHRLRDLLL	766

	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV			
1	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
2	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	818		
3	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
4	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
5	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
6	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
7	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
8	---RIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	816		
9	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	818		
10	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
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22	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	802		
23	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
24	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	818		
25	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
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29	IA	TRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819	
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37	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819		
38	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	817		

39	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819
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58	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819
59	IVTRIVE P LGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	817
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61	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819
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65	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819
66	IVTRIV K LLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	818
67	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	817
68	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819

IEVVQRACRAILHIPRRIRQGLERALL

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67	IEVVQRACRAILHIPRRIRQGLERALL	844
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Consensus

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9. B.US.2007.CH0040_3_d0197_ipe032_2_17.MG900207
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17. B.US.2007.CH0040_3_d0197_ipe032_2_43.MG900215
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21. B.US.2007.CH0040_3_d0197_ipe032_3_55.MG900219
22. B.US.2007.CH0040_3_d0197_ipe032_3_56.MG900220
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24. B.US.2007.CH0040_3_d0197_ipe032_3_60.MG900222
25. B.US.2007.CH0040_3_d0197_ipe032_3_61.MG900223
26. B.US.2007.CH0040_3_d0197_ipe032_3_64.MG900224
27. B.US.2007.CH0040_3_d0197_ipe032_3_65.MG900225
28. B.US.2007.CH0040_3_d0197_ipe032_3_66.MG900226
29. B.US.2007.CH0040_3_d0197_ipe032_3_68.MG900227
30. B.US.2007.CH0040_3_d0197_ipe032_3_69.MG900228
31. B.US.2007.CH0040_3_d0197_ipe032_3_70.MG900229
32. B.US.2007.CH0040_3_d0197_ipe032_3_74.MG900230
33. B.US.2007.CH0040_3_d0197_ipe032_3_75.MG900231

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3	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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11	LTPLCVTLNCTDLGNVTNTT --- NSNGGMMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
12	LTPLCVTLNCTDLGNVTNTT --- NSNGGMMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
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DVVPIND-----TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI

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2	TCTRPNNNTRKSIPMGPGKAFYARGDITGDI	K	KAYC	K	INGTEWHSTLKLVEKLREQY	- N	349
3	TCTRPNNNTRKSIPMGPGKAFYARGDITGDI	K	KAYC	K	INGTEWHSTLKLVEKLREQY	- N	349
4	TCTRPNNNTRKSIPMGPGKAFYARGDITGDI	K	KAYC	E	INGTEWHSTLKLVEKLREQY	- N	349
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9	TCTRP	H	NNTRKSIPMGPGKAFYARGDITGDI	R	KAYC	E	INGTEWHSTLKLVEKLREQY - N 349
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18	TCTRP	H	NNTRKSIPMGPGKAFYARGDITGDI	R	KAYC	E	INGTEWHSTLKLVEKLREQY - N 348
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30	TCTRP	H	NNTRKSIPMGPGKAFYARGDITGDI	R	KAYC	E	INGTEWHSTLKLVEKLREQY - N 349
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32	TCTRPNNNTRKSIPMGPGKAFYARGDITGDI	K	KAYC	K	INGTEWHSTLKLVEKLREQY	- N	349
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KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND - TKGSHDTNGTLILPCK

1	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
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NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT

1	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
2	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
3	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
4	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
5	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
6	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
7	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
8	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
9	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
10	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
11	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
12	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
13	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
14	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
15	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
16	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
17	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
18	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREK - AFG - LGAVFLGFLGAAGSTMGAASIT	524
19	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	525
20	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	525
21	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
22	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
23	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
24	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
25	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	525
26	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
27	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
28	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
29	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
30	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
31	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
32	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
33	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526

LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW

1	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
2	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
3	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
4	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
5	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
6	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
7	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
8	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
9	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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11	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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16	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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20	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	585
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27	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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29	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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31	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
32	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
33	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586

GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN

1	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
2	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
3	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
4	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
5	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
6	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
7	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
8	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
9	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
10	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
11	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
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19	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	645
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32	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
33	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646

EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS

1	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
2	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLISLRIVFTVLSIVNRVRQGYSPLS	706
3	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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18	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	704
19	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	705
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25	EQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	705
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33	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706

FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL

1	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
2	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
3	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
4	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
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6	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
7	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT LIWSDLRSLCLFSYHRLRDLLL	766
8	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
9	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
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14	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
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19	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	765
20	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT LIWSDLRSLCLFSYHRLRDLLL	765
21	FQTHLPAQRGPDRPEGIGEEGGK RDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
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26	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
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32	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALIWSDLRSLCLFSYHRLRDLLL	766
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IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV

1	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
2	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
3	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
4	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
5	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
6	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
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8	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
9	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
10	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
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12	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
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16	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
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19	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	818
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26	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
27	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVNLLNATAIAVAEGTDRV	819
28	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
29	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
30	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
31	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
32	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819
33	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAIAVAEGTDRV	819

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5	VEVVQRACRAILHIPRRIRQGLERALL	846
6	IEVVQRACRAILHIPRRIRQGLERALL	846
7	IEVVQRACRAILHIPRRIRQGLERALL	846
8	IEVVQRACRAILHIPRRIRQGLERALL	846
9	IEVVQRACSAILHIPRRIRQGLERALL	846
10	IEVVQRACRAILHIPRRIRQGLERALL	846
11	IEVVQRACRAILHIPRRIRQGLERALL	846
12	IEVVQRACRAILHIPRRIRQGLERALL	846
13	IEVVQRACRAILHIPRRIRQGLERALL	846
14	IEVVQRACRAILHIPRRIRQGLERALL	846
15	IEVVQRACRAILHIPRRIRQGLERALL	846
16	IEVVQRACRAILHIPRRIRQGLERALL	846
17	IEVVQRACRAILHIPRRIRQGLERALL	846
18	IEVVQRACRAILHIPRRIRQGLERALL	844
19	IEVVQRACRAILHIPRRIRQGLERALL	845
20	IEVVQRACRATLHIPRRIRQGLERALL	845
21	IEVVQRACRAILHIPRRIRQGLERALL	846
22	IEVVQRACRAILHIPRRIRQGLERALL	846
23	IEVVQRACRAILHIPRRIRQGLERALL	846
24	IEVVQRACRAILHIPRRIRQGLERALL	846
25	IEVVQRACRAILHIPRRIRQGLERALL	845
26	IEVVQRACRAILHIPRRIRQGLERALL	846
27	IEVVQRACRATLHIPRRIRQGLERALL	846
28	IEVVQRACRAILHIPRRIRQGLERALL	846
29	IEVVQRACRATLHIPRRIRQGLERALL	846
30	IEVVQRACRAILHIPRRIRQGLERALL	846
31	IEVVQRACRAILHIPRRIRQGLERALL	846
32	IEVVQRACRAILHIPRRIRQGLERALL	846
33	IEVVQRACRAILHIPRRIRQGLERALL	846

Consensus

1. B.US.2006.700010040_C9_4520.EU289193
2. B.US.2007.CH0040_3_d0299_ipe032_2_01.MG900232
3. B.US.2007.CH0040_3_d0299_ipe032_2_04.MG900233
4. B.US.2007.CH0040_3_d0299_ipe032_2_05.MG900234
5. B.US.2007.CH0040_3_d0299_ipe032_2_06.MG900235
6. B.US.2007.CH0040_3_d0299_ipe032_2_08.MG900236
7. B.US.2007.CH0040_3_d0299_ipe032_2_09.MG900237
8. B.US.2007.CH0040_3_d0299_ipe032_2_10.MG900238
9. B.US.2007.CH0040_3_d0299_ipe032_2_13.MG900239
10. B.US.2007.CH0040_3_d0299_ipe032_2_16.MG900240
11. B.US.2007.CH0040_3_d0299_ipe032_2_18.MG900241
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21. B.US.2007.CH0040_3_d0299_ipe032_2_33.MG900251
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24. B.US.2007.CH0040_3_d0299_ipe032_2_38.MG900254
25. B.US.2007.CH0040_3_d0299_ipe032_2_39.MG900255
26. B.US.2007.CH0040_3_d0299_ipe032_2_42.MG900256
27. B.US.2007.CH0040_3_d0299_ipe032_2_43.MG900257
28. B.US.2007.CH0040_3_d0299_ipe032_2_45.MG900258
29. B.US.2007.CH0040_3_d0299_ipe032_2_47.MG900259
30. B.US.2007.CH0040_3_d0299_ipe032_2_48.MG900260
31. B.US.2007.CH0040_3_d0299_ipe032_2_49.MG900261
32. B.US.2007.CH0040_3_d0299_ipe032_2_51.MG900262
33. B.US.2007.CH0040_3_d0299_ipe032_2_53.MG900263
34. B.US.2007.CH0040_3_d0299_ipe032_2_55.MG900264
35. B.US.2007.CH0040_3_d0299_ipe032_2_57.MG900265
36. B.US.2007.CH0040_3_d0299_ipe032_2_58.MG900266
37. B.US.2007.CH0040_3_d0299_ipe032_2_59.MG900267
38. B.US.2007.CH0040_3_d0299_ipe032_2_60.MG900268
39. B.US.2007.CH0040_3_d0299_ipe032_2_61.MG900269
40. B.US.2007.CH0040_3_d0299_ipe032_3_40.MG900270

[illegible][illegible]

[illegible]

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2	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	176
3	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
4	LTPLCVTLNCTDLGNVTNTT	---	NSNGK	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
5	LTPLCVTLNCTDLGNVTNTT	---	NSNEK	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
6	LTPLCVTLNCTDLGNVTNTT	N--	SNGER	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	178
7	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
8	LTPLCVTLNCTDLGNVTNTA	---	NSNGT	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
9	LTPLCVTLNCTDLGNVTNTT	---	NSTEK	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
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11	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
12	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
13	LTPLCVTLNCTDLGNVTNTT	---	NSNEK	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
14	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
15	LTPLCVTLNCTDLGNVTNTT	N--	SNGER	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	178
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24	LTPLCVTLNCTDLGNVTNTT	N--	SNGER	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	178
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32	LTPLCVTLNCTDLGNVTNTT	---	NSNEK	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
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34	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
35	LTPLCVTLNCTDLGNVTNTT	---	NSNGK	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
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38	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
39	LTPLCVTLNCTDLGNVTNTT	---	NSKG	EMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
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DVVPIND-----TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI

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1	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
2	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	289
3	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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6	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	291
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8	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
9	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
10	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY - N

1	TCTRP	N	NNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
2	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	348
3	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
4	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
5	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
6	TCTRP	N	NNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCKINGTEWHSTLKL VVEKLREQY
7	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
8	NCTRP	N	NNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
9	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
10	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
11	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
12	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
13	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
14	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
15	TCTRP	N	NNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCKINGTEWHSTLKL VVEKLREQY
16	TCTRP	N	NNNTRKSIPMGP GKAFYARGDI	I	IGDIRKASCKINGTEWHSTLKL VVEKLREQY
17	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
18	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
19	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
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22	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
23	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
24	TCTRP	N	NNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCKINGTEWHSTLKL VVEKLREQY
25	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
26	NCTRP	N	NNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
27	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
28	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
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30	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
31	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
32	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
33	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
34	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
35	NCTRP	N	NNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
36	TCTRP	N	NNNTRKSIPMGP GKAFYARGDI	I	IGDIRKASCEINGTEWHSTLKL VVEKLREQY
37	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
38	NCTRPHNNTRKSIPMGP GKAFYARGDI	I	IGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349
39	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCEINGTEWHSTLKL VVEKLREQY	- N	349		
40	NCTRPHNNTRKSIPMGP GKAFYARGDITGDIRKAYCE	V	NGTEWHSTLKL VVEKLREQY	- N	349

KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND - TKGSHDTNGTLILPCK

1	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
2	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	407
3	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
4	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNDTLMLPCK	408
5	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNDTLILPCK	408
6	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNDTLMLPCK	409
7	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
8	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLTL PCK	408
9	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGKLILPCK	408
10	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGKLILPCK	408
11	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
12	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
13	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
14	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
15	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNDTLMLPCK	409
16	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
17	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNDTLILPCK	408
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19	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
20	KTIVFNRSSGGDPEIVMHSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGKLILPCK	408
21	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
22	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
23	KTIVFNRSSGGDPEIIMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408
24	KTIVFNRSSGGDPEIVMYSFTCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNDTLMLPCK	409
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40	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-TKGSHDTNGTLILPCK	408

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6	IKQIINMWQGVGKAMYAPPIEGEIRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	468
7	I-QIINMWQGVGKAMYAPPIEGKIRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	466
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NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT

1	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
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3	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
4	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
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17	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
18	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQRE - - AFG - LGAVFLGFLGAAGSTMGAASIT	524
19	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
20	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
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39	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
40	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526

LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW

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3	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN

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21	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
22	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWREIDNYTGYYQLIEESQNQQEKN	646
23	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
24	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	647
25	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
26	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
27	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
28	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
29	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
30	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
31	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
32	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
33	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
34	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
35	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
36	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
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39	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
40	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646

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3	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
4	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
5	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
6	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	707
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9	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	707
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14	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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39	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
40	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706

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1	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLA	LIWSDLRSLCLFSYHRLRDLLL	766	
2	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	765	
3	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
4	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
5	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
6	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	767	
7	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	765	
8	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLA	LIWSELRSLCLFSYHRLRDLLL	766	
9	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	767	
10	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
11	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
12	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLS	766	
13	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
14	FQTHLPAQRGPDRPEGIT	GEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766
15	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	767	
16	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
17	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
18	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	764	
19	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
20	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
21	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
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39	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766	
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IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV

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3	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV		819
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7	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV		818
8	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATAI	AVAEGTDRV	819
9	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV		820
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Consensus

1. B.US.2006.700010040_C9_4520.EU289193
2. B.US.2007.CH0040_3_d0428_ipe032_10_17.MG900271
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27. B.US.2007.CH0040_3_d0428_ipe032_27_16.MG900296
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33. B.US.2007.CH0040_3_d0428_ipe032_3_08.MG900302
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35. B.US.2007.CH0040_3_d0428_ipe032_3_11.MG900304
36. B.US.2007.CH0040_3_d0428_ipe032_3_12.MG900305
37. B.US.2007.CH0040_3_d0428_ipe032_3_13.MG900306
38. B.US.2007.CH0040_3_d0428_ipe032_3_14.MG900307

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9	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
10	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
11	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
12	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
13	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
14	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
15	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
16	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
17	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
18	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
19	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
20	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
21	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
22	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
23	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
24	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
25	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
26	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
27	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
28	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
29	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
30	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
31	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
32	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
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34	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
35	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
36	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
37	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
38	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60

DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMVEQMHEDIISLWDQSLKPCVK

1	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMVEQMHEDIISLWDQSLKPCVK	120
2	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMVEQMHEDIISLWDQSLKPCVK	120
3	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMVEQMHEDIISLWDQSLKPCVK	120
4	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMVEQMHEDIISLWDQSLKPCVK	120
5	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMVEQMHEDIISLWDQSLKPCVK	120
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LTPLCVTLNCTDLGNVTTTT--NSNGTLMKGEVKNCSFKITTDIKDRTRKEYALFYKL

1	LTPLCVTLNCTDLGNVT	N	TT	--	NSNG	E	M	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
2	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
3	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
4	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
5	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
6	LTPLCVTLNCTDLGNVT	N	TT	--	NSNG	G	M	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
7	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
8	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
9	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
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17	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
18	LTPLCVTLNCTDLGNVT	N	TT	--	NSNG	G	M	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
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25	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
26	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKI	A	T	DIKDRTRKEYALFYKL	177		
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28	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
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31	LTPLCVTLNCTDLGNVT	N	TT	--	NSNG	G	M	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
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35	LTPLCVTLNCTDLGNVT	N	TT	--	NSNG	G	M	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
36	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
37	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177					
38	LTPLCVTLNCTDLGNVTTTT			--	NSNG	T	L	MEKGEVKNCSFKITTDIKDR	M	R	KEYALFYKL	177		

DVVPIND-----TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI

1	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
2	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
3	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
4	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
5	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
6	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
7	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
8	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
9	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
10	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
11	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
12	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
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14	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
15	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
16	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
17	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
18	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
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21	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
22	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
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27	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
28	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
29	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
30	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
31	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	I 230
32	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
33	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
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35	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
36	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
37	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230
38	DVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	M 230

GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI

1	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
2	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
3	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
4	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
5	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
6	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
7	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
8	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
9	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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21	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
22	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
23	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
24	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
25	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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36	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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38	GTGPCTNVSTVQCTHGIRPVVSTQLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290

Age Group	Percentage
18-24	10%
25-34	15%
35-44	25%
45-54	30%
55-64	15%
65-74	10%
75-84	5%
85+	5%

1	T	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	T	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349	
2	T	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	K	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349	
3	T	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	K	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349	
4	T	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	K	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349	
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6	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	K	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349	
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13	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	T	G	D	I	R	K	A	Y	C	E	I	N</																							

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1	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGTLILPCK	408
2	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCK	408
3	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCK	408
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5	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGTLILPCR	408
6	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCK	408
7	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCK	408
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3	NWRSELYKYKVVVKIEPLGVAPTAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
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3	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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15	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
16	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
17	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
18	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
19	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
20	GCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
21	GCSGKLICTTAVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
22	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTDYYQLIEESQNQQEKN	646
23	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
24	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
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26	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	645
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37	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
38	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646

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3	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
4	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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37	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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2	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766
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4	FQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	LIWSDLRSLCLFSYHRLRDLLL	766
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3	IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV		819
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Consensus

1. B.US.2006.700010040_C9_4520.EU289193
2. B.US.2008.CH0040_3_d0568_ipe032_2_01.MG900308
3. B.US.2008.CH0040_3_d0568_ipe032_3_03.MG900309
4. B.US.2008.CH0040_3_d0568_ipe032_3_04.MG900310
5. B.US.2008.CH0040_3_d0568_ipe032_3_06.MG900311
6. B.US.2008.CH0040_3_d0568_ipe032_3_13.MG900312
7. B.US.2008.CH0040_3_d0568_ipe032_3_15.MG900313
8. B.US.2008.CH0040_3_d0568_ipe032_3_17.MG900314
9. B.US.2008.CH0040_3_d0568_ipe032_3_18.MG900315
10. B.US.2008.CH0040_3_d0568_ipe032_3_20.MG900316
11. B.US.2008.CH0040_3_d0568_ipe032_3_21.MG900317
12. B.US.2008.CH0040_3_d0568_ipe032_3_22.MG900318
13. B.US.2008.CH0040_3_d0568_ipe032_3_25.MG900319
14. B.US.2008.CH0040_3_d0568_ipe032_3_26.MG900320
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25. B.US.2008.CH0040_3_d0568_ipe032_3_42.MG900331
26. B.US.2008.CH0040_3_d0568_ipe032_3_43.MG900332
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28. B.US.2008.CH0040_3_d0568_ipe032_3_47.MG900334
29. B.US.2008.CH0040_3_d0568_ipe032_3_49.MG900335
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32. B.US.2008.CH0040_3_d0568_ipe032_3_53.MG900338
33. B.US.2008.CH0040_3_d0568_ipe032_3_54.MG900339
34. B.US.2008.CH0040_3_d0568_ipe032_3_56.MG900340
35. B.US.2008.CH0040_3_d0568_ipe032_3_58.MG900341

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11	MRVMGIRKKNYQHLWREGILLGL L MICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
12	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
13	MRVMGIRKKNYQHLWK E GILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
14	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
15	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
16	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
17	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
18	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
19	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
20	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
21	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
22	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
23	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
24	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
25	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
26	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
27	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
28	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
29	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
30	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
31	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
32	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
33	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
34	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWR - - - - -	45
35	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60

DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK

1	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
2	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
3	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
4	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
5	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
6	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
7	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
8	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
9	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
10	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
11	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
12	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
13	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
14	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
15	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
16	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
17	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
18	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
19	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
20	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
21	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
22	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
23	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
24	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
25	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
26	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
27	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
28	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
29	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
30	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
31	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
32	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
33	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
34	-----ATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	97
35	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120

LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL

1	LTPLCVTLNCTDLGNVTNTT ---NSNGEMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
2	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
3	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
4	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
5	LTPLCVTLNCTDLEKVA NNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
6	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
7	LTPLCVTLNCTDLENVTDTT ---NSTEKMMEKGEVKNCSFKITTDLKDRTTRKEYALFYKL	177
8	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
9	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTDTKDRTRKEYALFYKL	177
10	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
11	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
12	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
13	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTD MKDRTRKEYALFYKL	177
14	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
15	LTPLCVTLNCTDLGNVTATT ---NSNGTLM EKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
16	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
17	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFRITTDIKDRTRKEYALFYKL	177
18	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTEIKDRTRKEYALFYKL	177
19	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTDVKDRTRKEYALF ---	174
20	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
21	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTD RKDRTRKEYALFYKL	177
22	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTEIKDRTRKEYALFYKL	177
23	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
24	LTPLCVTLNCTDLEKVTNTT ---NSNETMMEKGEVKNCSFKITTDIKDRTRKEYALFYKL	177
25	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
26	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTDTKDRTRKEYALFYKL	177
27	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTEIKDRTRKEYALFYKL	177
28	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
29	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
30	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
31	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
32	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
33	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177
34	LTPLCVTLNCTDLGNVT TTT ---NSNGTLM EKGEVKNCSFKITTDTKDRTRKEYALFYKL	154
35	LTPLCVTLNCTDLEKVTNTT ---NSTEKMMEKGEVKNCSFKITTDVKDRTRKEYALFYKL	177

DVVPIND - - - - - TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI

1	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
2	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
3	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
4	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
5	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
6	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
7	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
8	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
9	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
10	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
11	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
12	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
13	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
14	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
15	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
16	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
17	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
18	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
19	- - - - -	- - - - -	SCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	214
20	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
21	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
22	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
23	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
24	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
25	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
26	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
27	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
28	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
29	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
30	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
31	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
32	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
33	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230
34	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	207
35	DVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAPAGFAILKCNDKQFI	230

GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI

1	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
2	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
3	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
4	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
5	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
6	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
7	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
8	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
9	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
10	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
11	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
12	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
13	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
14	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
15	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
16	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
17	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
18	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
19	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	274
20	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
21	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
22	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
23	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
24	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
25	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
26	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
27	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
28	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
29	GTGPCTNVSTV-----IRSVNFSDNAKTIIVQLNKSVEI	264
30	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290
31	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
32	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
33	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
34	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	267
35	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFRD	290

NCTRPHNNTRKSIPMGP GKAFYARGDIIGDIRKAYCEINGTEWHSTLKLVEKLREQY - N

1	TCTRP	NNNTRKSIPMGP GKAFYARGDI	TGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349
2	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCE	VNGTEWHSTLKLVEKLREQY	- N	349
3	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
4	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
5	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
6	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYC	NINGTEWHSTLKLVEKLREQY	- N	349
7	NCA	RPHNNTRKSIPMGP GKAFYARGDI	TGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349
8	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
9	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCE	LNGTEWHSTLKLVEKLREQY	- N 349
10	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
11	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCK	INGTEWHSTLKLVEKLREQY	- N 349
12	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
13	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
14	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
15	TCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCK	INGTEWHSTLKLVEKLREQY	- N 349
16	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
17	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
18	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYC	TINGTEWHSTLKLVEKLREQY	- N 349	
19	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCK	INGTEWHSTLKLVEKLREQY	- N 333	
20	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
21	NCTRPHNNTRKSIPMGP GKAFYARGDI	TGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
22	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGN	IRKAYCEINGTEWHSTLKLVEKLREQY	- N 349	
23	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
24	TCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCK	INGTEWHSTLKLVEKLREQY	- N 349
25	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
26	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCE	LDGTEWHSTLKLVEKLREQY	- N 349
27	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEING	A	TEWHSTLKLVEKLREQY	- N 349
28	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	
29	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCK	INGTEWHSTLKLVEKLREQY	- N 323
30	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCE	VNGTEWHSTLKLVEKLREQY	- N 349	
31	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCA	INGTEWHSTLKLVEKLREQY	- N 349	
32	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCK	INGTEWHSTLKLVEKLREQY	- N 349
33	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCK	INGTEWHSTF	KLVEKLRAQY - N 349
34	NCTRP	NNNTRKSIPMGP GKAFYARGDI	IGDIRKASCE	LDGTEWHSTLKLVEKLREQY	- N 326
35	NCTRPHNNTRKSIPMGP GKAFYARGDI	IGDIRKAYCEINGTEWHSTLKLVEKLREQY	- N	349	

KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND - TKGSHDTNGTLILPCR

1	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	TLILPCR	K	408						
2	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
3	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
4	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
5	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR	K	408						
6	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
7	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
8	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
9	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	TLILPCR		408						
10	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
11	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
12	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
13	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
14	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWS	D	-	TKGSHDTN	DTLMLPCR	408						
15	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
16	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
17	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
18	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
19	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		392						
20	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
21	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
22	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	RILILPCR		408						
23	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
24	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWS	D	-	TKGSHDTN	DTLMLPCR	408						
25	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	SILILPCR		408						
26	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	TLILPCR		408						
27	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHD	INGTLILPCR	K	408						
28	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
29	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR	K	382						
30	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						
31	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	TLILPCR	K	408						
32	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTN	DTLMLPCR		408						
33	KTIVF	S	RSSGGDPEIVMYSFNCGG	D	FFYCNST	Q	L	FNSTWPWND	-	TKGSHDTN	DTLMLPCR	408
34	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	TLILPCR		385						
35	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	-	TKGSHDTNG	KLILPCR		408						

IKQIINMWQGVGKAMYAPPIEGXIRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD

1	IKQIINMWQGVGKAMYAPPIEGK	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
2	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
3	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
4	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
5	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
6	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
7	IKQIINMWQGVGKAMYAPPIEGK	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
8	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
9	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
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11	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
12	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
13	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
14	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
15	IKQIINMWQGVGKAMYAPPIEGI	ISCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	466
16	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
17	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
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19	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	451
20	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
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27	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
28	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
29	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	441
30	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
31	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467
32	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDRRD	467
33	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	467
34	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD	444
35	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG-YESNKTDEIFRPGGGDMRD	467

NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT

1	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
2	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
3	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
4	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
5	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
6	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
7	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
8	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
9	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
10	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQKEKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
11	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
12	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
13	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
14	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
15	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	525
16	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
17	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
18	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
19	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	510
20	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
21	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
22	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
23	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
24	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
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26	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
27	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
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29	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	500
30	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
31	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
32	KWRSELYKHVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
33	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526
34	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	503
35	NWRSELYKYKVVVKIEPLGVAPTKAKRRVVQREKRAFG - LGAVFLGFLGAAGSTMGAASIT	526

LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW

1	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
2	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
3	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
4	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
5	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
6	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
7	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
8	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
9	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
10	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
11	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
12	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
13	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
14	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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16	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
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19	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	570
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30	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
31	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
32	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
33	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586
34	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	563
35	LTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLAVERYLKDQQLLGIW	586

GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT - - - - GYIYQLIEESQNNQ

1	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
2	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
3	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
4	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	GYIYQL	GYIYQLIEESQNNQ	646
5	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
6	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
7	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
8	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
9	GCSGKLICP TTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
10	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
11	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
12	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
13	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
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18	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
19	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	626
20	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
21	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
22	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
23	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
24	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
25	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
26	GCSGKLICP TTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
27	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
28	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
29	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	616
30	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
31	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
32	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
33	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642
34	GCSGKLICP TTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	619
35	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYT	- - - -	GYIYQLIEESQNNQ	642

QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY

1	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
2	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
3	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
4	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	706
5	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
6	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
7	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
8	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
9	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
10	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
11	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
12	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
13	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
14	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
15	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGVIGLRIVFTVLSIVNRVRQGY	701
16	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
17	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
18	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
19	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	686
20	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
21	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
22	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
23	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
24	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
25	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
26	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
27	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
28	QEKNEQELLALDKWAGLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
29	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	676
30	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
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33	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702
34	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	679
35	QEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGY	702

SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR

1	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTALIWSDLRSLCLFSYHRLR	762
2	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
3	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTALIWSDLRSLCLFSYHRLR	762
4	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	766
5	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
6	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
7	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
8	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
9	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
10	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
11	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
12	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
13	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTALIWSDLRSLCLFSYHRLR	762
14	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
15	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	761
16	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
17	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
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29	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	736
30	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
31	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
32	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	762
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34	SPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRSLCLFSYHRLR	739
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[illegible]

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3	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
4	TDRVIEVVQRACRAILHIPRRIRQGLERALL	850
5	TDRVIEVVQRACRAIRHIPRRIRQGLERALL	846
6	TDRVIEVVQ G ACRAILHIPRRIRQGLERALL	846
7	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
8	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
9	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
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11	TDRV V IEVVQRACRAILHIPRRIRQGLERALL	846
12	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
13	TDRVIEVVQRT T CR A IRHIPRRIRQGLERALL	846
14	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
15	TDRVIEVVQRACRAILHIPRRIRQGLERALL	845
16	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846
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18	TDRVIEVVQRACRAIRHIPRRIRQGLERALL	846
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35	TDRVIEVVQRACRAILHIPRRIRQGLERALL	846

Consensus

1. B.US.2006.700010040_C9_4520.EU289193
2. B.US.2008.CH0040_3_d0666_ipe032_27_9.MG900342
3. B.US.2008.CH0040_3_d0666_ipe032_2_01.MG900343
4. B.US.2008.CH0040_3_d0666_ipe032_3_03.MG900344
5. B.US.2008.CH0040_3_d0666_ipe032_3_04.MG900345
6. B.US.2008.CH0040_3_d0666_ipe032_3_05.MG900346
7. B.US.2008.CH0040_3_d0666_ipe032_3_07.MG900347
8. B.US.2008.CH0040_3_d0666_ipe032_3_08.MG900348
9. B.US.2008.CH0040_3_d0666_ipe032_5_11.MG900349
10. B.US.2008.CH0040_3_d0666_ipe032_5_12.MG900350
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12. B.US.2008.CH0040_3_d0666_ipe032_5_15.MG900352
13. B.US.2008.CH0040_3_d0666_ipe032_5_16.MG900353
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19. B.US.2008.CH0040_3_d0666_ipe032_5_24.MG900359
20. B.US.2008.CH0040_3_d0666_ipe032_5_33.MG900360
21. B.US.2008.CH0040_3_d0666_ipe032_5_34.MG900361
22. B.US.2008.CH0040_3_d0666_ipe032_5_37.MG900362
23. B.US.2008.CH0040_3_d0666_ipe032_5_38.MG900363
24. B.US.2008.CH0040_3_d0666_ipe032_5_41.MG900364
25. B.US.2008.CH0040_3_d0666_ipe032_5_42.MG900365
26. B.US.2008.CH0040_3_d0666_ipe032_5_43.MG900366
27. B.US.2008.CH0040_3_d0666_ipe032_5_44.MG900367
28. B.US.2008.CH0040_3_d0666_ipe032_5_45.MG900368
29. B.US.2008.CH0040_3_d0666_ipe032_5_48.MG900369
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31. B.US.2008.CH0040_3_d0666_ipe032_5_51.MG900371
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40. B.US.2008.CH0040_3_d0666_ipe032_5_65.MG900380
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43. B.US.2008.CH0040_3_d0666_ipe032_5_68.MG900383
44. B.US.2008.CH0040_3_d0666_ipe032_5_73.MG900384
45. B.US.2008.CH0040_3_d0666_ipe032_5_79.MG900385
46. B.US.2008.CH0040_3_d0666_ipe032_5_82.MG900386

MRVMGIRKNYOHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY

[illegible]

[illegible]

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1	LTPLCVTLNCTDL	GNVTNTT	---	NSNGEMMEKGEVKNCSFKITTD	I	KDRTRKEYALFYKL	177
2	LTPLCVTLNCTDL	GNVT	TTTI	---	NSNGTLM	MEKGEVKNCSFKITTD	TKDRTRKEYALFYKL 173
3	LTPLCVTLNCTDL	GNVT	TTTT	---	NSNGTLM	MEKGEVKNCSFKITTD	TKDRTRKEYALFYKL 177
4	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFR	ITTDI	KDRTRKEYALFYKL 177
5	LTPLCVTLNCTDLE	NVT	DTT	---	NSTEKMM	MEKGEVKNCSFKITTD	LKDRTRKEYALFYKL 177
6	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFR	ITTDI	KDRTRKEYALFYKL 177
7	LTPLCVTLNCTDLE	NVT	TNTT	---	NSTEKMM	MEKGEVKNCSFKITTD	ITDRTRKEYALFYKL 177
8	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFR	ITTDI	KDRTRKEYALFYKL 177
9	LTPLCVTLNCTDL	GNVT	TTTT	---	NSNGTLM	MEKGEVKNCSFKITTD	TKDRTRKEYALFYKL 177
10	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFKITTD	V	KDRTRKEYALFYKL 177
11	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFKITTD	M	KDRTRKEYALFYKL 177
12	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFKITTD	V	KDRTRKEYALFYKL 177
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16	LTPLCVTLNCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFR	ITTDI	KDRTRKEYALFYKL 177
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22	LTPLCVTLNCTDL	GNVT	TTTT	---	NSNGTLM	MEKGEVKNCSFKITTE	EIKDRTRKEYALFYKL 177
23	LTPLCVTL	KCTDLEK	GTNTT	---	NSTEKMM	MEKGEVKNCSFKITTD	VKDRTRKEYALFYKL 177
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6	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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26	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	284
27	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
28	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
29	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
30	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
31	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
32	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
33	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
34	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
35	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
36	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNF N DNAKTIIVQLNKSVEI	290
37	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
38	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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40	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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42	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290
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44	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNF R DNAKTIIVQLNKSVEI	290
45	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNF R DNAKTIIVQLNKSVEI	290
46	GTGPCTNVSTVQCTHGIRPVVSTQLLLNGLSLAEEEVVIRSVNFSDNAKTIIVQLNKSVEI	290

NCTRPHNNTRKSIPMGP GKAFYARGDIIGDIRKAYCEINGTEWHSTLKL VVGKLR EKY - N

1	T	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	T	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349
2	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	345
3	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
4	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
5	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
6	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
7	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349
8	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	K	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
9	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
10	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
11	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	T	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
12	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
13	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	N	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349
14	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
15	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	K	Y	-	N	349
16	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
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18	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
19	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
20	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
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22	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	K	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	R	Y	-	N	349
23	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
24	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
25	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
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27	S	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
28	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
29	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
30	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	A	E	K	L	R	K	Q	Y	-	N	349
31	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
32	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
33	N	C	T	R	P	N	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	S	C	E	L	D	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	K	Q	Y	-	N	349
34	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
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36	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	K	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	R	Y	-	N	349
37	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	K	I	N	G	T	E	W	H	S	T	L	K	L	V	V	E	K	L	R	E	Q	Y	-	N	349
38	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	I	G	D	I	R	K	A	Y	C	E	I	N	G	T	E	W	H	S	T	L	K	L	V	V	G	K	L	R	E	K	Y	-	N	349
39	N	C	T	R	P	H	N	N	T	R	K	S	I	P	M	G	P	G	K	A	F	Y																																							

KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND - TKGSHDTNDTLMLPCR

1	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
2	KTIIIFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	404
3	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
4	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
5	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
6	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
7	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
8	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
9	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
10	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
11	KTIVFKRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
12	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
13	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
14	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
15	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
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18	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
19	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTPWNDT	- TKGSHDTNGT	TLILPCR	407
20	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
21	-----SSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		399
22	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
23	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
24	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
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26	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		402
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28	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
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36	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
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38	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
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40	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
41	KTIIIFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
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43	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
44	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNGT	TLILPCR	408
45	KTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		408
46	KTIVFNRSSGGDPEIVM-SFNCGGEFFYCNSTKLFNSTWPWND	- TKGSHDTNDTLMLPCR		407

IKQIINMWQGVGKAMYAPPIEGXIRCSSNITGLLLTRDGG-YESNETDEIFRPGGGDMRD

1	IKQIINMWQGVGKAMYAPPIEGK	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
2	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	463
3	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
4	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
5	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
6	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
7	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNKTDEIFRPGGGDMRD	467
8	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
9	IKQIINMWQGVGKAMYAPPIEGE	IRCS-----LLLTRDGG	-YESNETDEIFRPGGGDMRD	462
10	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
11	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
12	IKQIINMWQGVGKVMYAPPIEGI	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
13	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNKTDEIFRPGGGDMRD	467
14	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
15	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
16	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
17	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
18	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
19	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	466
20	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
21	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	458
22	IKQIINMWQGVGKAMYAPPIEGK	IRCSSNITGLLLTRDGG	-YESNKTDEIFRPGGGDMRD	467
23	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
24	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
25	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
26	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	461
27	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
28	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
29	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
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32	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
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34	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGG-----	462
35	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
36	IKQIINMWQGVGKAMYAPPIEGK	IRCSSNITGLLLTRDGG	-YESNKTDEIFRPGGGDMRD	467
37	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
38	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
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42	IKQIINMWQGVGKAMYAPPIEGE	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
43	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
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45	IKQIINMWQGVGKAMYAPPIEGI	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	467
46	IKQIINMWQGVGKAMYAPPIEGQ	IRCSSNITGLLLTRDGG	-YESNETDEIFRPGGGDMRD	466

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GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN

1	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
2	GCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	642
3	GCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
4	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
5	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWR	646
6	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
7	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
8	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
9	GCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	641
10	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
11	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
12	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
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15	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWR	646
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19	GCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	645
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21	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	637
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27	GCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEEL	646
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44	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
45	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	646
46	GCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYQLIEESQNQQEKN	645

EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS

1	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
2	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	702
3	GQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
4	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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6	EQELLALDKWAGLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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24	EQELLALDKWAGLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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28	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
29	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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32	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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34	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	698
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37	EQELLALDEWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
38	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
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41	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVG --- GLRIVFTVLSIVNRVRQGYSPLS	703
42	EQELLALDKWASL - NWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	705
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45	EQELLALDKWAGLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	706
46	EQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGGLIGLRIVFTVLSIVNRVRQGYSPLS	705

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IVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV

1	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
2	I----	VELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV 811
3	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
4	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
5	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
6	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
7	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
8	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
9	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	814
10	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
11	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
12	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
13	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
14	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
15	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
16	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
17	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
18	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
19	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	818
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21	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			810
22	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
23	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
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26	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			813
27	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
28	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
29	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
30	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
31	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
32	I A	TRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV 819
33	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
34	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			811
35	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
36	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
37	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	819
38	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
39	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			818
40	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
41	I----	VELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV 812
42	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATA	I	AVAEGTDRV	818
43	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
44	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
45	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			819
46	IVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLLNATATAVAEGTDRV			818

IEVVQRACRAILHIPRRIRQGLERALL

1	IEVVQRACRAILHIPRRIRQGLERALL	846
2	IEVVQRACRAILHIPRRIRQGLERALL	838
3	IEVVQRACRAILHIPRRIRQGLERALL	846
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5	IEVVQRACRAILHIPRRIRQGLERALL	846
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7	IEVVQRACRAILHIPRRIRQGLERALL	846
8	IEVVQRACRAILHIPRKIRQGLERALL	846
9	IEVVQRACRAILHIPRRIRQGLERALL	841
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26	IEVVQRACRAILHIPRRIRQGLERALL	840
27	IEVVQRACRAILHIPRRIRQGLERALL	846
28	IEVVQRACRAILHIPRRIRQGLERALL	846
29	IEVVQRACRAILHIPRRIRQGLERALL	846
30	IEVVQRACRAILHIPRRIRQGLERALL	846
31	IEVVQRACRAILHIPRRIRQGLERALL	846
32	IEVVQRACRAILHIPRRIRQGLERALL	846
33	IEVVQRACRAILHIPRRIRQGLERALL	846
34	IEVVQRACRAILHIPRRIRQGLERALL	838
35	IEVVQRACRAILHIPRRIRQGLERALL	846
36	IEVVQRACRAILHIPRRIRQGLERALL	846
37	IEVVQRACRAIRHIPRRIRQGLERALL	846
38	IEVVQRACRAILHIPRRIRQGLERALL	846
39	IEVVQRACRAILHIPRRIRQGLERALL	845
40	IEVVQRACRAILHIPRRIRQGLERALL	846
41	IEVVQRACRAILHIPRRIRQGLERALL	839
42	IEVVQRACRAILHIPRRIRQGLERALL	845
43	IEVVQRACRAILHIPRRIRQGLERALL	846
44	IEVVQRACRAILHIPRRIRQGLERALL	846
45	IEVVQRACRAILHIPRRIRQGLERALL	846
46	IEVVQRACRAILHIPRRIRQGLERALL	845

Consensus

- 1. B.US.2006.700010040_C9_4520.EU289193
- 2. B.US.2008.CH0040_3_d0743_ipe032_2_03.MG900387
- 3. B.US.2008.CH0040_3_d0743_ipe032_2_04.MG900388
- 4. B.US.2008.CH0040_3_d0743_ipe032_2_05.MG900389
- 5. B.US.2008.CH0040_3_d0743_ipe032_2_07.MG900390
- 6. B.US.2008.CH0040_3_d0743_ipe032_2_08.MG900391
- 7. B.US.2008.CH0040_3_d0743_ipe032_2_10.MG900392
- 8. B.US.2008.CH0040_3_d0743_ipe032_2_11.MG900393
- 9. B.US.2008.CH0040_3_d0743_ipe032_2_12.MG900394
- 10. B.US.2008.CH0040_3_d0743_ipe032_2_13.MG900395
- 11. B.US.2008.CH0040_3_d0743_ipe032_2_14.MG900396
- 12. B.US.2008.CH0040_3_d0743_ipe032_2_15.MG900397
- 13. B.US.2008.CH0040_3_d0743_ipe032_2_16.MG900398
- 14. B.US.2008.CH0040_3_d0743_ipe032_2_18.MG900399
- 15. B.US.2008.CH0040_3_d0743_ipe032_2_19.MG900400
- 16. B.US.2008.CH0040_3_d0743_ipe032_2_20.MG900401
- 17. B.US.2008.CH0040_3_d0743_ipe032_2_22.MG900402
- 18. B.US.2008.CH0040_3_d0743_ipe032_2_25.MG900403
- 19. B.US.2008.CH0040_3_d0743_ipe032_2_26.MG900404
- 20. B.US.2008.CH0040_3_d0743_ipe032_2_27.MG900405
- 21. B.US.2008.CH0040_3_d0743_ipe032_2_28.MG900406
- 22. B.US.2008.CH0040_3_d0743_ipe032_2_29.MG900407
- 23. B.US.2008.CH0040_3_d0743_ipe032_2_30.MG900408
- 24. B.US.2008.CH0040_3_d0743_ipe032_2_32.MG900409
- 25. B.US.2008.CH0040_3_d0743_ipe032_2_33.MG900410
- 26. B.US.2008.CH0040_3_d0743_ipe032_3_24.MG900411

	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	
1	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
2	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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4	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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6	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
7	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
8	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
9	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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12	MRVMGIRKKNYQHLWRKGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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16	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
17	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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22	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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4	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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6	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
7	GTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
8	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMW ^K NNMVEQMHEIDIISLWDQSLKPCVK	120
9	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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16	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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24	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMW ^K NNMVEQMHEIDIISLWDQSLKPCVK	120
25	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEIDIISLWDQSLKPCVK	120
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1	LTPLCVTLNCTDLGNVTNTT	-----	NSNGEMMEKGEVKNC SFKITTDI	163
2	LTPLCVTLNCTDLGNVTTTT	NRNGTNCTDLGNVTTTT	NRNGTLM EKGEVKNC SFRITTDI	180
3	LTPLCVTLNCTDLGNVTTTT	-----	NNGTLM EKGEVKNC SFKITTDI	163
4	LTPLCVTLNCTDLGNVTTTT	NRNGTNCTDLGNVTTTT	NRNGTLM EKGEVKNC SFRITTDI	180
5	LTPLCVTLNCTDLGNVTTTT	-----	NSNGTLM EKGEVKNC SFKITTDI	163
6	LTPLCVTLNCTDLGNVTTTT	-----	NSNGTLM EKGEVKNC SFKITTDI	163
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8	LTPLCVTLNCTDLGNVTTTT	-----	NSNGTLM EKGEVKNC SFKITTEI	163
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10	LTPLCVTLNCTDLGNDTTTT	-----	NSNGTLM EKGEVKNC SFKITTEI	163
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12	LTPLCVTLNCTDL EKGNTT	-----	NSTEKMM EKGEVKNC SFRITTDI	163
13	LTPLCVTLNCTDLGNVTTTT	NRNGTNCTDLGNVTTTT	NRNGTLM EKGEVKNC SFRITTDI	180
14	LTPLCVTLNCTDLGNVTTTT	-----	NSNGTLM EKGEVKNC SFKITTDI	163
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19	LTPLCVTLNCTDLGNVTTTT	NRNGTNCTDLGNVTTTT	NRNGTLM EKGEVKNC SFKITTDV	180
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21	LTPLCVTLNCTDLGNDTTTT	-----	NSNGTLM EKGEVKNC SFKITTEI	163
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25	LTPLCVTLNCTDLGNVTTTT	NRNGTNCTDLGNVTTTT	NRNGTLM EKGEVKNC SFRITTDI	180
26	LTPLCVTLNCTDLGNVTNTT	-----	NSNGGMM EKGEVKNC SFKITADI	163

KDRTRKEYALFYKLDVVPIND - - - - - TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP

1	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
2	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
3	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
4	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
5	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
6	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
7	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
8	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
9	RDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
10	TDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
11	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
12	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
13	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
14	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
15	KDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
16	TDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
17	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
18	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
19	KDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
20	KDRTRTEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
21	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
22	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
23	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
24	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216
25	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	233
26	KDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPIPIHYCAP	216

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1	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
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3	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
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6	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
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11	AGFAILKCNDKQFN GTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	293
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18	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	293
19	AGFAILKCNDKQFN GTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	293
20	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
21	AGFAILKCNDKQFN GTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
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23	AGFAILKCNDKQFN GTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
24	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276
25	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	293
26	AGFAILKCNDKQFIGTGPCNTVSTVQCTHGIRPVVSTQLLLNGLAEEEVVIRSVNFSDN	276

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1	AKTIIIVQLNKSVEITCTRPNNNTRKSIPMGPGKAFYARGDITGDIRKAYCEINGTEWHST	336
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3	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGNIRKASCELDGTEWHST	336
4	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKAYCEINGTEWHST	353
5	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKASCELDGTEWHST	336
6	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGNIRKASCELDGTEWHST	336
7	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKAYCEINGTEWHST	353
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9	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKAYCNINGTEWHST	336
10	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGNIRKAYCTINGTEWHST	336
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15	AKTIIIVQLNKSVEIMTCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKASCEINGTEWHST	353
16	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGNIRKASCEINGTEWHST	336
17	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKAYCTINGTEWHS	336
18	AKTIIIVQLNKSVEITCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKASCEINGTEWHST	353
19	AKTIIIVQLNKSVEIMTCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKASCEINGTEWHST	353
20	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYAKGDIIGDIRKAYCEINGTEWHST	336
21	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKAYCTINGTEWHST	336
22	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKASCELDGTEWHST	336
23	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKAYCTINGTEWHST	336
24	AKTIIIVQLNKSVEINCTRPNNNTRKSIPMGPGKAFYARGDIIGNIRKAYCEINGTEWHST	336
25	AKTIIIVQLNKSVEITCTRPNNNTRKSIPMGPGKAFYARGDIIGDIRKASCEINGTEWHST	353
26	AKTIIIVQLNKSVEITCTRPNNNTRKSIPMGPGKAFYARGDITGDIKKAYCKINGTEWHST	336

LKL VVEKLREQY-NKTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPWND-TK

1	LKL	V	E	K	L	R	E	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
2	LKL	V	E	K	L	R	E	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	411	
3	LKL	V	E	Q	L	R	K	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
4	LKL	V	V	G	K	L	R	E	K	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	N	K	411
5	LKL	V	E	Q	L	R	K	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
6	LKL	V	E	K	L	R	K	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
7	LKL	V	V	G	K	L	R	E	K	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	411
8	LKL	V	E	K	L	R	E	K	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
9	LKL	V	E	K	L	R	E	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
10	LKL	V	E	K	L	R	E	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394	
11	LKL	V	E	K	L	R	E	R	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	411	
12	LKL	V	V	G	K	L	R	E	K	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	394
13	LKL	V	E	K	L	R	E	Q	Y	-	N	K	T	I	V	F	N	R	S	S	G	G	D	P	E	I	V	M	Y	S	F	N	C	G	G	E	F	F	Y	C	N	S	T	K	L	F	N	S	T	W	P	W	N	D	-	T	K	411	
14	LKL	V	E	K																																																							

GSHDTNGT	L	I	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	K	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	453			
GSHDTNG	K	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	470		
GSHDTNGT	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	453			
GSHDTNG	K	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	470		
GSHDTNGT	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	S	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	453			
GSHDTNGT	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	453			
GSHDTNG	K	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	470		
GSHDTNGT	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	453			
GSHDTN	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	Q	I	S	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	N	K	453
GSHDTN	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	Q	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	453	
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GSHDTNG	K	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	R	C	S	S	N	I	T	G	L	L	L	T	R	D	G	G	-	YES	NE	470		
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GSHDTNG	K	L	I	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	R	C	S	S	N	I	T	G	L													

TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF

1	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
2	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGALFLGF	529
3	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
4	TDKIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
5	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
6	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
7	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
8	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
9	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
10	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRMVQREKRAFG - LGAVFLGF	512
11	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
12	TDEIFRPGGGDMRDNWRSELYKD KVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
13	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGALFLGF	529
14	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
15	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
16	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
17	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
18	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
19	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
20	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
21	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
22	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
23	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
24	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512
25	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	529
26	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKAKRRVVQREKRAFG - LGAVFLGF	512

LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA

1	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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3	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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5	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
6	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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8	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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12	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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14	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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16	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
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18	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	589
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21	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
22	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
23	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
24	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572
25	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	589
26	LGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQLQARVLA	572

VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI

1	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
2	VERYLKDQQLLGIWGCSGKLICTTTVPWNNSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
3	VERYLKDQQLLGIWGCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
4	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
5	VERYLKDQQLLGIWGCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
6	VERYLKDQQLLGIWGCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
7	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
8	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
9	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
10	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
11	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
12	VERYLKDQQLLGIWGCSGKLICPTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
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18	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
19	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
20	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
21	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632
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25	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	649
26	VERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIDNYTGYYI	632

YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL

1	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
2	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
3	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
4	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
5	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
6	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
7	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
8	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
9	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
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12	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
13	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
14	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
15	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
16	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
17	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
18	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
19	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
20	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
21	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
22	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
23	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
24	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692
25	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	709
26	YQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLRIVFTVL	692

SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS

1	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLA	752
2	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
3	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
4	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
5	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
6	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
7	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
8	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
9	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
10	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
11	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
12	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
13	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
14	AIVNRVRQGYAPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
15	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
16	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
17	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
18	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
19	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
20	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
21	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
22	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
23	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
24	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	752
25	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTTLIWSDLRS	769
26	SIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGKKRDRDRSDPLVNGFLA	752

	LCLFSYHRLRDLLLIVTRIVELLGR-----RGWEVLKYWWNLLQYWSQELKNSAVSLL										
1	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
2	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
3	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
4	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
5	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
6	LCLFSYHRLRDLLLI-----VELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	801							
7	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
8	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
9	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
10	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
11	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
12	LCLFSYHHLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
13	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
14	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
15	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
16	LCLFSYHSLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
17	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
18	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
19	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
20	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
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24	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							
25	LCLFSYHRLGDLIIIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	822							
26	LCLFSYHRLRDLLLIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQELKNSAVSLL	805							

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3	NATAIAVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	846
4	NATA T AVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	863
5	NATAIAVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	846
6	NATAIAVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	842
7	NATAIAVAEGTDRVIEVVQRACRAI R HIPRRIRQGLERALL	863
8	NATA T AVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	846
9	NATAIAVAEGTDRVIEVVQ G ACRAILHIPRRIRQGLERALL	846
10	NATAIAVAEGTDRVIEVVQRA G RAI R HIPRRIRQGLERALL	846
11	N T TAIAVAEGTDRVIEVVQ G ACRAILHIPRRIRQGLERALL	863
12	NATAIAVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	846
13	NATAIAVAEGTDRVIEVVQ G ACRAILHIPRRIRQGLERALL	863
14	NATAIAVAEGTDRVIEVVQRACRAILHIPRRIRQGLERALL	846
15	NATAIAVAEGTDRVIEVVQ G ACRAILHIPRRIRQGLERALL	863
16	NATAIAVAEGTDRVIEVVQRA G RAI R HIPRRIRQGLERALL	846
17	NATAIAVAEGTDRVIEVVQRA G RAI R HIPRRIRQGLERALL	846
18	NATAIAVAEGTDRVIEVVQ G ACRAILHIPRRIRQGLERALL	863
19	NATAIAVAEGTDRVIEVVQ G ACRAILHIPRRIRQGLERALL	863
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21	NATAIAVAEGTDRVIEVVQRA G RAI R HIPRRIRQGLERALL	846
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23	NATAIAVAEGTDRVIEVVQRA G RAI R HIPRRIRQGLERALL	846
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25	NATAIAVAEGTDRVIEVVQRACRAI C HIPRRIRQGLERALL	863
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Consensus

- 1.** B.US.2006.700010040_C9_4520.EU289193
- 2.** B.US.2010.CH0040_3_d1485_ipe032_15_08.MG900412
- 3.** B.US.2010.CH0040_3_d1485_ipe032_15_09.MG900413
- 4.** B.US.2010.CH0040_3_d1485_ipe032_15_10.MG900414
- 5.** B.US.2010.CH0040_3_d1485_ipe032_15_11.MG900415
- 6.** B.US.2010.CH0040_3_d1485_ipe032_15_13.MG900416
- 7.** B.US.2010.CH0040_3_d1485_ipe032_15_16.MG900417
- 8.** B.US.2010.CH0040_3_d1485_ipe032_15_18.MG900418
- 9.** B.US.2010.CH0040_3_d1485_ipe032_15_19.MG900419
- 10.** B.US.2010.CH0040_3_d1485_ipe032_15_24.MG900420
- 11.** B.US.2010.CH0040_3_d1485_ipe032_15_25.MG900421
- 12.** B.US.2010.CH0040_3_d1485_ipe032_15_27.MG900422
- 13.** B.US.2010.CH0040_3_d1485_ipe032_15_28.MG900423
- 14.** B.US.2010.CH0040_3_d1485_ipe032_15_29.MG900424
- 15.** B.US.2010.CH0040_3_d1485_ipe032_15_30.MG900425
- 16.** B.US.2010.CH0040_3_d1485_ipe032_15_31.MG900426
- 17.** B.US.2010.CH0040_3_d1485_ipe032_15_32.MG900427
- 18.** B.US.2010.CH0040_3_d1485_ipe032_15_33.MG900428
- 19.** B.US.2010.CH0040_3_d1485_ipe032_15_37.MG900429
- 20.** B.US.2010.CH0040_3_d1485_ipe032_15_38.MG900430
- 21.** B.US.2010.CH0040_3_d1485_ipe032_15_39.MG900431
- 22.** B.US.2010.CH0040_3_d1485_ipe032_15_41.MG900432
- 23.** B.US.2010.CH0040_3_d1485_ipe032_15_42.MG900433
- 24.** B.US.2010.CH0040_3_d1485_ipe032_15_45.MG900434
- 25.** B.US.2010.CH0040_3_d1485_ipe032_15_46.MG900435
- 26.** B.US.2010.CH0040_3_d1485_ipe032_15_47.MG900436
- 27.** B.US.2010.CH0040_3_d1485_ipe032_15_48.MG900437
- 28.** B.US.2010.CH0040_3_d1485_ipe032_27_06.MG900438
- 29.** B.US.2010.CH0040_3_d1485_ipe032_2_49.MG900439
- 30.** B.US.2010.CH0040_3_d1485_ipe032_2_50.MG900440
- 31.** B.US.2010.CH0040_3_d1485_ipe032_9_03.MG900441

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3	MRVMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
4	MRAMGIRKKNYQHLWREGILLGILMICSAADNLWVTVYYGVPVWREATTTLFCASDAKAY	60
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3	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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7	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
8	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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FRITTDMDRTRKEYALFYKLDVVPIND - - - - - TRYRLVSCNTSVITQACPKVSFEPI

1	FKITTDIKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	209
2	FMITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
3	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
4	FRITTDMKDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEPI	216
5	FMITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
6	FMITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
7	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	232
8	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	225
9	FRITTDMKDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEPI	233
10	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
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22	FMITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
23	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	232
24	FMITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
25	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	232
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29	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
30	FRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEPI	224
31	FRITTDMKDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEPI	233

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27	PIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIR	284
28	PIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIR	284
29	PIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIR	284
30	PIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIR	284
31	PIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIR	293

SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAIIGDIRKAHCNIS

1	SVNFSDNAKTIIVQLNKSVEITCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	D	I	T	G	D	I	R	K	A	Y	C	E	I	N	329
2	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
3	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
4	SVNFSDNAKTIIVQLNKSVEINCTRP--NTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	334
5	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
6	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
7	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	352
8	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	345
9	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	353
10	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
11	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
12	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
13	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
14	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
15	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
16	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
17	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
18	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
19	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
20	SVNFSDNVKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	N	I	I	G	D	I	R	K	A	Y	C	N	I	S	329
21	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	Y	C	N	V	S	347
22	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
23	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	352
24	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
25	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	352
26	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	P	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
27	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
28	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	C	N	I	S	344
29	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	G	I	I	G	D	I	R	K	A	H	-	N	I	S	343
30	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	344
31	SVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSI	H	M	G	P	G	K	A	F	Y	A	R	G	A	I	I	G	D	I	R	K	A	H	C	N	I	S	353

GTEWHSTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW

1	GTEWHSTLKLVEKLREQY - NKTIVFN	RSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW	388
2	RAEWHSTLKLVAEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
3	GTEWHSTLKLVKKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
4	GTEWHSTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		393
5	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
6	RAEWHSTLKLVAEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
7	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		411
8	RAEWHSTLKLVAEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		404
9	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		412
10	GTEWHSTLKLVKKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
11	RAEWHSTLKLVAEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
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19	RTEWHSTLKLVAEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
20	GPEWYSTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		388
21	RTEWHSTLKLVKKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		406
22	RAEWHSTLKLVAEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
23	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		411
24	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
25	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		411
26	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
27	GTEWHSTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
28	GTEWHSTLKLVKKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
29	GTEWHSTLKLVKKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		402
30	GTEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		403
31	RAEWHNTLKLVEKLREQY - NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW		412

PWND--T~~X~~GSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD

1	PWND--TKGSHDTNGTLLI L LPCKIKQIINMWQGVGKAMYAPPIEGK I R C SSNITGLLLTRD	446
2	PWND--TQGSHDTNGTLLTLPCKIKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	461
3	PWND--TEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
4	PWND--TEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	451
5	PWNG--TNGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
6	PWND--TNGSHDTNGTLLTLPCKIKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	461
7	PGND--TEGSH N TNGTLLTLPCKIKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	469
8	-----SGMILKG H MTL---MKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	453
9	PGND--TNGSHD I NGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	470
10	PWNDTDTEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	463
11	PWND--TNGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
12	PWNDTDTEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	463
13	PWNDTDTGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	463
14	PWND--TNGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
15	PWND--TNGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
16	PWNDTDTEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	463
17	PGND--TKGSHD N NGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
18	PGND--TNGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
19	PWND--TEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	461
20	PWND--TNGSYDTN D TLMLPCKIKQIINMWQGVGKAMYAPPIEGE I R C SSNITGLLLTRD	446
21	PWND--TNGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	464
22	PWND--TQGSHDTNGTLLTLPCKIKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	461
23	PGND--TEGSH N TNGTLLTLPCKIKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	469
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28	PWNDTDTEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	463
29	PWNDTDTEGSHDTNGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	462
30	PGND--TEGSH N TNGTLLTLPCKIKQIINMWQE V GKAMYAPPIEGGIKCSSNITGLLLTRD	461
31	PGND--TNGSHD I NGTLLTLPCKIKQIINMWQGVGKAMYAPPIEGGIKCSSNITGLLLTRD	470

GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPTKAKRRVVQREKRAFG-

1	GG-YESNE	TDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	504
2	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
3	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
4	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	509	
5	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
6	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
7	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	527	
8	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	511	
9	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	528	
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11	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
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16	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	521	
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18	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
19	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
20	GG-YESNE	TDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	504
21	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	522	
22	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
23	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	527	
24	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
25	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	527	
26	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
27	GG-YESNKTDEIFRPGGGDMRDNRSELYKYKVVKIEPLGVAPT	KAKRRVVQREKRAFG	-	519	
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LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK

1	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	564
2	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
3	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
4	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	569
5	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
6	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
7	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	587
8	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	571
9	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	588
10	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	581
11	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
12	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	581
13	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	581
14	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
15	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	578
16	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	581
17	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
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19	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
20	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	564
21	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRTIEAQQHLLQLTVWGIK	582
22	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
23	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	587
24	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
25	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	587
26	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
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28	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	581
29	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	580
30	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	579
31	LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIK	588

QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE

1	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE	624
2	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE	639
3	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE	639
4	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE	629
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6	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE	639
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8	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWERE	631
9	QLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDKMTWMEWERE	648
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2	INNYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
3	INNYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
4	IDNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	689
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6	INNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
7	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	707
8	INNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	691
9	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	708
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11	INNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
12	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	701
13	INNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	701
14	INNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
15	INNYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	698
16	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	701
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19	INNYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
20	IDNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	684
21	INNYTGYIYQLIEESQNQQEKNEQELLAWDKWASL - NWFDITNWLWYIKIFIMIVGGLIG	701
22	INNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
23	IDNYTGYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	707
24	INNYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
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28	IDNYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	701
29	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	700
30	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	699
31	IDNYTDYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLIG	708

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3	LRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLT	759
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6	LIWSDLRSLCLFSYHRLRDLLLIATRIVELLGR-----RGWEVLKYWWNLLQYWSQEL	812
7	LIWSDLRSLCLFSYHRLRDLLLIATRIVELLGR-----RGWEVLKYWWNLLQYWSQEL	820
8	LIWSDLRSLCLFSYHHLRDLLLIVTRIVELLGR-----RGWEVLKYWWNLLQYWSQEL	804
9	LIWSDLRSLCLFSYHHLRDLLLIVTRIVELLGR-----RGWEVLKYWWNLLQYWSQEL	821
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3	KNSAI	ISLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL		861
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6	KNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			861
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9	KNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			870
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28	KNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			863
29	KS	SAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL		862
30	KNSAV	NLLNATAIA	IAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL	861
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Consensus

1. B.US.2006.700010040_C9_4520.EU289193
2. B.US.2010.CH0040_3_d1597_ipe032_15_28.MG900512
3. B.US.2010.CH0040_3_d1597_ipe032_15_29.MG900513
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32. B.US.2010.CH0040_3_d1597_ipe032_25_5.MG900542
33. B.US.2010.CH0040_3_d1597_ipe032_25_6.MG900543
34. B.US.2010.CH0040_3_d1597_ipe032_25_8.MG900544
35. B.US.2010.CH0040_3_d1597_ipe032_27_01.MG900545

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24	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
25	MRVMGIRKKNYQHLWRKKGILLLGILMICSAADKLWVTVYYGVPVWREATTTTLCASDAKAY	60
26	MRVMGIRKKNYQHLWREGILLLGILMICSATDNLWVTVYYGVPVWREATTTTLCASDAKAY	60
27	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
28	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
29	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
30	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
31	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
32	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
33	MRVMGIRKKNYQHLWREGILLLGILMICSAADDLWVTVYYGVPVWREATTTTLCASDAKAY	60
34	MRVMGIRKKNYQHLWREGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60
35	MRVMGIRKKNYQHLWRGGILLLGILMICSAADNLWVTVYYGVPVWREATTTTLCASDAKAY	60

DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK

1	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
2	DTEAHNVWATHACVPTDPNPQEVE--NVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	118
3	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
4	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
5	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
6	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
7	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
8	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
9	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
10	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
11	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
12	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
13	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
14	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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16	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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18	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
19	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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21	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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23	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWEEQSLKPCVK	120
24	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
25	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
26	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
27	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
28	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
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31	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMGGKNNMVEQMHEDIISLWDQSLKPCVK	120
32	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
33	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
34	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
35	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMGGKNNMVEQMHEDIISLWDQSLKPCVK	120

[illegible]

ITTDMQDRTRKEYALFYKLDVVPIND-----TSYRLVSCNTSVITQACPKVSFEPIPI

1	ITTDIKDRTRKEYALFYKLDVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPI	211
2	ITTDMQDRTRKEYALFYKLDVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPI	231
3	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
4	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
5	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
6	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
7	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
8	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
9	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
10	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
11	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
12	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	216
13	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
14	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
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16	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
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19	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
20	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
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24	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
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26	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
27	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
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30	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
31	ITTDMQDRTRKEYALFYKLDVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPI	226
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33	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
34	ITTDMQDRTRKEYALFYKLDVVPIND-----	TSYRLVSCNTSVITQACPKVSFEPIPI	233
35	ITTDMQDRTRKEYALFYKLDVVPIND-----	TRYRLVSCNTSVITQACPKVSFEPIPI	227

HYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV

1	HYCAPAGFAILKCNDKQFI	IGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	271		
2	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	291		
3	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
4	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
5	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
6	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
7	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
8	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
9	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
10	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
11	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVATQLLLNGSLAEEEEVVIRSV	293		
12	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVI	I	IRSV	276
13	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
14	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
15	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
16	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
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18	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	286		
19	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
20	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
21	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
22	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
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24	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
25	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
26	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	293		
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35	HYCAPAGFAILKCNDKQF	NGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVIRSV	287		

NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGIIGDIRKAHCNISGT

1	NFSDNAKTIIVQLNKSVEITCTRPNNNTRKSI	PMGPGKAFYARGDITGDIRKAYCEINGT	331
2	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISGT	351
3	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
4	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
5	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
6	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
7	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
8	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
9	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
10	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
11	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISRA	353
12	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	336
13	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISGT	353
14	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
15	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISGT	353
16	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISGT	353
17	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
18	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	346
19	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
20	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
21	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISGT	353
22	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGAI	IIGDIRKAHCNISGT	353
23	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
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31	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	346
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33	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	353
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35	NFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGGI	IIGDIRKAHCNISGT	347

EWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG

1	EWHS	TLKLVEKLREQY	-NKTIVFN	R	SSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG	W	390
2	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					410
3	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
4	EWHNTLKLVA	KLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG				412
5	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
6	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
7	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
8	EWHNTLKLVK	KLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG				412
9	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
10	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
11	EWHS	TLKLVA	EKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTW	SW		412
12	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					395
13	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
14	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG				W	412
15	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
16	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG				R	412
17	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
18	EWHS	TLKLVK	KLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG		W	405
19	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
20	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
21	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG				R	412
22	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
23	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
24	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
25	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG				R	412
26	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
27	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
28	EWHS	TLKLVK	KLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG			412
29	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
30	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
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32	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
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34	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					412
35	EWHNTLKLVEKLREQY	-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNSTWPG					406

ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG

1	ND--TKGSHDTNGTLILPCKIKQIINMWQGVGKAMYAPPIEGKIIRCSSNITGLLLTRDGG	448
2	ND--TEGSHNTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	468
3	ND--TEGSHDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
4	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
5	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
6	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
7	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
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9	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
10	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
11	ND--TQGSHTDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
12	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	453
13	ND--TEGSHNTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
14	NND--TEGSHDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	471
15	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
16	NA--TRGSPDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
17	ND--TEGSHNTNGTALTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
18	NDTDTEGSHDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	465
19	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
20	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
21	NA--TRGSPDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
22	NA--TEGSHDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
23	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
24	ND--TEGSHNTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
25	ND--TEGSHNTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
26	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
27	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
28	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
29	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
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31	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	463
32	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
33	ND--TEGSHNTNGTTLTPCRIKQIINMWQGVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
34	ND--TEGSHNTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTRDGG	470
35	ND--TEGSHNTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKC-----TRDGG	455

-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG

1	-YESN E TDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	506
2	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	526
3	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
4	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
5	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
6	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
7	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
8	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
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11	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
12	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	511
13	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
14	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	529
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19	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
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32	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
33	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
34	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	528
35	-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVKIEPLGVAPTAKARRVVQREKRAFG-LG	513

AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL

1	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	566
2	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	586
3	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
4	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
5	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
6	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
7	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
8	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
9	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
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12	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	571
13	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
14	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	589
15	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
16	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
17	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
18	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	583
19	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
20	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
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31	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	581
32	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
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34	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	588
35	AVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGIKQL	573

QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN

1	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN	D	626	
2	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		646	
3	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
4	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
5	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
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7	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
8	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
9	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
10	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
11	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
12	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		631	
13	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
14	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWD	KMTWMEWEREIN	D	649
15	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
16	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
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18	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		643	
19	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
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27	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWEREIN		648	
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35	QARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTW	I	EWEREIN	633

NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR

1	NYTGYIYQLIEESQNQQEKNEQELLAL	L	DKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR	686		
2	NYTGYIYQLIEESQNQQEQ	Q	NEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR	706		
3	NYTGYIYQLIEESQNQQEKNEQELLAL	L	DKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR	708		
4	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
5	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
6	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
7	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
8	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
9	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
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11	NYTGYIYQLIEESQNQQEKNEQELLAL	L	DKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR	708		
12	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			691		
13	NYTGYIYQLIEESQNQQEKNEQELLAWDKWAG	G	LWNWFDITNWLWYIKIFIMIVGGLIGLR	708		
14	NYTD	Y	IYQLIEESQNQQEKNEQELLAL	L	DKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR	709
15	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
16	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
17	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
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19	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
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32	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
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34	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			708		
35	NYTGYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLIGLR			693		

IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI

1	IVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLALI	746
2	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	766
3	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSEPLVNGFLTLLI	768
4	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
5	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
6	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
7	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
8	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
9	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
10	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
11	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
12	IVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	751
13	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
14	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	769
15	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
16	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
17	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
18	IVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	763
19	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
20	IVFTVLSIVNRSRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
21	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
22	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
23	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
24	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
25	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
26	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
27	IVFTILSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
28	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
29	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
30	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
31	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	761
32	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
33	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
34	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	768
35	IVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFLTLLI	753

WSDLRSLCLFSYHRLRDLLLIATRIVELLGR - - - - - RGWEVLKYWWNLLQYWSQELKK

1	WSDLRSLCLFSYHRLRDLLLI	V	TRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKN	799				
2	WSDLRSLCLFSYHH	LRDLLLI	V	TRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKD	819			
3	WSDLRSLCLFSYHH	LRDLLLI	V	TRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821			
4	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
5	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
6	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
7	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
8	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
9	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
10	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821				
11	WSDLRSLCLFSYHH	LRDLLLI	V	TRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	821			
12	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKK	804				
13	WSDLRSLCLFSYHH	LRDLLLI	V	TRIVELLGR	- - - - -	RGWEVLKYWWNLLQYW	G	QELKN	821	
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16	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWE	I	LKYWWNLLQYWSQELKK	821		
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18	WSDLRSLCLFSYHH	LRDLLLI	V	TRIVELLGR	- - - - -	RGWEVLKYWWNLLQYWSQELKD	816			
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33	WSDLRSLCLFSYHRLRDLLLI		ATRIVELLGR	- - - - -	RGWEVLKYWWNLLQYW	G	QELKN	821		
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Consensus

1. B.US.2006.700010040_C9_4520.EU289193
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4. B.US.2011.CH0040_3_d1737_ipe032_25_19.MG900548
5. B.US.2011.CH0040_3_d1737_ipe032_25_20.MG900549
6. B.US.2011.CH0040_3_d1737_ipe032_25_21.MG900550
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38. B.US.2011.CH0040_3_d1737_ipe032_27_09.MG900582
39. B.US.2011.CH0040_3_d1737_ipe032_27_12.MG900583
40. B.US.2011.CH0040_3_d1737_ipe032_9_01.MG900584
41. B.US.2011.CH0040_3_d1737_ipe032_9_04.MG900585
42. B.US.2011.CH0040_3_d1737_ipe032_9_05.MG900586

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9	MRVMGIRKKNYQHLWREGTLLLGILMICSADEN	LWVTVYYGVPVWREATTTTLCASDAKAY	60
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34	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
35	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
36	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
37	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
38	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
39	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMW K NNMVEQMHEDIISLWDQSLKPCVK	120
40	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
41	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120
42	DTEAHNVWATHACVPTDPNPQEVELKNVTENFNMWENNMMVEQMHEDIISLWDQSLKPCVK	120



1	LTPLCVTLNCTD LGNVTTNTT-----NSNGEMMEKGEVKNC	155
2	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMEKGEVKNC	177
3	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
4	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
5	LTPLCVTLNCTDLENVTATTN-----SNGTLMEEEGEVEKNC	156
6	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
7	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
8	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
9	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
10	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
11	LTPLCVTLNCTDLENVTATTN-----SNGTLMEEEGEVEKNC	156
12	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
13	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
14	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
15	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
16	LTPLCVTLNCTDLENDITTT-----NSNGTSMEEGEVEKNC	155
17	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
18	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMEKGEVKNC	177
19	LTPLCVTLNCTDTTTTN-----SNGTSMEEGEVEKNC	151
20	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
21	LTPLCVTLNCTDTTTTN-----SNGTSMEEGEVEKNC	151
22	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
23	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
24	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
25	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
26	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
27	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTNTTNRNGTLMGNETLMMERGEVKNC	180
28	LTPLCVTLNCTDNVTTTTNRNGTNCTDLRNDTAT-----TNSNETLMEKGEVKNC	170
29	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
30	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMEEGEVEKNC	177
31	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
32	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
33	LTPLCVTLNCTDLENDTTTT-----NGTSMEEGEVEKNC	153
34	LTPLCVTLNCTDNVTTTTNRNGTNCTDSGNVTNTTNRNGTL---MGNETLMMERGEVKNC	177
35	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
36	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
37	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
38	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
39	LTPLCVTLNCTDLENDTTTI-----NSNGTSMEEGEVEKNC	155
40	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154
41	LTPLCVTLNCTDDLNDVVTTTNRNGTNCTDSGNVTPPTNRNGT-LMGNETLMEKGEVKNC	179
42	LTPLCVTLNCTDLGNAVTTTT-----DRNEKMMEKEEV-NC	154

SFRITTDMDRTRKEYALFYKLDVVPIND - - - - - TRYRLVSCNTSVITQACPKVSFEP

1	SFKITTDIKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	208
2	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
3	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
4	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
5	SFKITTEIKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	209
6	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
7	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
8	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
9	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
10	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
11	SFKITTEIKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	209
12	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
13	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
14	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	232
15	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
16	SFKITTEIKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	208
17	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
18	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
19	SFKITTEMKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVLTQACPKVSFEP	204
20	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
21	SFKITTEMKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVLTQACPKVSFEP	204
22	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
23	SFRITTDMDRTRKEYALFYKLDVVPIND	- - TPIND	TSYRLVSCNTSVITQACPKVSFEP	237
24	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
25	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
26	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
27	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	233
28	SFRITTDMDRTRKEYALFYKLDVVPIND	- - TPIND	TSYRLVSCNTSVITQACPKVSFEP	228
29	SFMITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
30	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
31	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
32	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
33	SFKITTEMKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVLTQACPKVSFEP	206
34	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TSYRLVSCNTSVITQACPKVSFEP	230
35	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
36	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
37	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
38	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
39	SFKITTEIKDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	208
40	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207
41	SFRITTDMDRTRKEYALFYKLDVVPIND	- - - - -	TRYRLVSCNTSVITQACPKVSFEP	232
42	SFKITTDVKDRMRKEYALFYKLDVVPIND	- - - - -	TRYRLISCNTSVITQACPKVSFEP	207

IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI

1	IPIHYCAPAGFAILKCNDKQF	I	IGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI	268
2	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
3	IPIHYCAPAGFAILKCNDKQFNGTGPCTNV	A	VQCTHGIRPVVSTQLLLNGSLAEEEEVVI	267
4	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
5	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			269
6	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
7	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
8	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
9	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
10	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
11	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			269
12	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
13	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
14	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
15	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
16	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			268
17	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
18	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
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20	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
21	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			264
22	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
23	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			297
24	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
25	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
26	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
27	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			293
28	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			288
29	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
30	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI	L		290
31	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
32	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
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34	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			290
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36	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
37	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVST	I	QCTHGIRPVVSTQLLLNGSLAEEEEVVI	292
38	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
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40	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267
41	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			292
42	IPIHYCAPAGFAILKCNDKQFNGTGPCTNVSTVQCTHGIRPVVSTQLLLNGSLAEEEEVVI			267

RSVNFSDNAKTIIVQLNKSVEINCTRPNNNTRKSIHMGPGKAFYARGXIIGDIRKAHCNI

1	RSVNFSDNAKTIIVQLNKSVEIT	CTRPNNNTRKSI	PMGPGKAFYARGD	ITGDIRKAYCEI	328			
2	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	350		
3	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
4	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
5	RSVNFSDNAKTIIVQLNKSVEIN	CTRPH	NNTRKSI	PMGPGKAFYARGN	IIGDIRKAYCNI	329		
6	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
7	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGG	IIGDIRKAHCNI	350		
8	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
9	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGG	IIGDIRKAHCNI	350		
10	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
11	RSVNFSDNAKTIIVQLNKSVEIN	CTRPH	NNTRKSI	PMGPGKAFYARGN	IIGDIRKAYCNI	329		
12	RSVNFSDN	T	KTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352
13	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
14	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
15	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
16	RSVNFSDNAKTIIVQLNKSVEIN	CTRPH	NNTRKSI	PMGPGKAFYARGG	IIGDIRKAYCNI	328		
17	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
18	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGG	IIGDIRKAHCNI	350		
19	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	PMGPG	KAFYARGG	IIGDIRKAYCNI	324		
20	RSVNFSDNAKTIIVQLNKS	VKIN	CTRPNNNTRKSI	IHMGP	GKAFYARGG	IIGDIRKAHCNI	350	
21	RSVNFSDNAKTIIVQLNKSVEIN	CTRPH	NNTRKSI	PMGPGKAFYARGN	IIGDIRKAYCNI	324		
22	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
23	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGG	IIGDIRKAHCNI	357		
24	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
25	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	G	R	AFYARGG	IIGDIRKAHCNI	350
26	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
27	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	353		
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33	RSVNFSDNAKTIIVQLNKSVEIN	CTRPH	NNTRKSI	PMGPGKAFYARGN	IIGDIRKAYCNI	326		
34	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGG	IIGDIRKAHCNI	350		
35	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
36	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
37	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
38	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
39	RSVNFSDNAKTIIVQLNKSVEIN	CTRPH	NNTRKSI	PMGPGKAFYARGG	IIGDIRKAYCNI	328		
40	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		
41	RSVNFSDNAKTIIVQLNKSVEIN	CTRPNNNTRKSI	IHMGP	GKAFYARGA	IIGDIRKAHCNI	352		
42	RSVNFSDNAKTIIVQLNKSVE	MTCTRPNNNTRKSI	PMGPGKV	FYARGD	IIGDIRKAHCNI	327		

SGTEWHSTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST

1	NGTEWHSTLKLVEKLREQY-NKTIVFNRSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	387
2	SRAEWYSTLKLVAEKLREQY-HKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
3	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
4	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
5	SRPEWHSTLKLVEKLKQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	388
6	SGTEWHNTLKLVEKLKEQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
7	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
8	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
9	SRTTEWHSTLKLVAEKLREQY-KKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
10	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
11	SRPEWHSTLKLVEKLKQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	388
12	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
13	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
14	SGTEWHNTLTLLVVEKLREQF-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
15	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
16	SRAEWHSTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	387
17	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
18	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
19	SRAEWHSTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	383
20	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
21	SGPEWHSTLKLVEKLRAQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	383
22	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
23	SGTEWHSTLKLVEKLREKY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	416
24	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
25	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
26	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
27	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	412
28	SGTEWHNTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	407
29	SGTEWHNTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
30	SGTEWHNTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
31	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
32	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
33	SGPDWHSTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	385
34	SGTEWHNTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	409
35	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
36	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
37	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
38	SGTEWHNTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
39	SRAEWHSTLKLVEKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	387
40	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386
41	SGTEWHNTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	411
42	SGTEWHSTLKLVGKLREQY-NKTIVFNHSSGGDPEIVMYSFNCGGEFFYCNSTKLFNST	386

WPXNX--T×GSHDTNGTTLTPCRIKQIINMWQEVGKAMYAPPIEGIIKCSSNITGLLLTR

1	WPW	ND--	T	K	G	S	H	D	T	N	G	T	L	I	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	445
2	WPG	ND--	T	E	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
3	WPW	NG--	T	N	G	T	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
4	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
5	WPW	ND--	T	N	R	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	-	T	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	445
6	WPR	NA--	T	K	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
7	WHG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
8	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
9	WPG	SD--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
10	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
11	WPW	ND--	T	N	R	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	446
12	WPR	NA--	I	R	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
13	WHG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
14	WHR	NA--	T	R	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
15	WPG	NG--	T	N	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
16	WPR	ND--	T	Q	G	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	445
17	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	K	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
18	WLG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
19	WPR	NA--	T	Q	G	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	441
20	WPG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
21	WPW	ND--	T	N	R	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	441
22	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
23	WPR	NA--	T	K	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	474
24	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
25	WPW	NDND	T	E	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
26	WHG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
27	WHG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	470
28	WPW	NG--	T	Q	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	465
29	WPW	NND	T	E	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	470
30	WPG	ND--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
31	WPR	NT--	T	R	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
32	WHG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
33	WPR	ND--	T	K	R	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	443
34	WPG	ND--	T	E	G	S	H	N	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	467
35	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
36	WTR	NA--	T	R	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
37	WPR	NT--	T	R	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
38	WPR	NT--	T	R	G	S	P	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	469
39	WSW	NG--	T	K	G	S	H	D	T	N	D	T	L	M	L	P	C	K	I	K	Q	I	I	N	M	W	Q	G	V	G	K	A	M	Y	A	P	P	I	E	G	E	I	R	C	S	S	N	I	T	G	L	L	L	T	R	445
40	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N	M	W	Q	E	V	G	K	A	M	Y	A	P	P	I	E	G	I	I	K	C	S	S	N	I	T	G	L	L	L	T	R	444
41	WPW	NG--	T	N	G	S	H	D	T	N	G	T	L	T	L	P	C	R	I	K	Q	I	I	N																																

DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG

1	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	504	
2	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		526	
3	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
4	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
5	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPT	RAKARRVVQREKRAFG	504
6	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
7	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		526	
8	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
9	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		526	
10	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
11	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	505	
12	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
13	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
14	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
15	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
16	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	504	
17	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
18	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		526	
19	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	500	
20	DGG-YG	SNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	526	
21	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	500	
22	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
23	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		533	
24	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
25	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
26	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
27	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		529	
28	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		524	
29	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		529	
30	DGG-YESNKTDE	TFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	526	
31	DGG-YESNKTDE	VFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	526	
32	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		526	
33	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	502	
34	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		526	
35	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	
36	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
37	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
38	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
39	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	504	
40	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIE	-LGVAPTAKARRVVQREKRAFG	502
41	DGG-YESNKTDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG		528	
42	DGG-YESNE	TDEIFRPGGGDMRDNWRSELYKYKVVVKIEPLGVAPTAKARRVVQREKRAFG	503	

- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI

1	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	563
2	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
3	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
4	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
5	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	563
6	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
7	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
8	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
9	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
10	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
11	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	564
12	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
13	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
14	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
15	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
16	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	563
17	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
18	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
19	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	559
20	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
21	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	559
22	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
23	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	592
24	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
25	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
26	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
27	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	588
28	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	583
29	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	588
30	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
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32	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
33	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTAWGI	561
34	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	585
35	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562
36	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
37	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
38	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
39	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	563
40	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	561
41	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	587
42	- LGAVFLGFLGAAGSTMGAASITLTVQARQLLSGIVQQQNNLLRAIEAQQHLLQLTVWGI	562

KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER

1	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	623
2	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	645
3	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
4	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
5	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	623
6	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
7	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	645
8	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
9	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	645
10	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
11	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	624
12	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
13	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
14	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
15	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
16	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	623
17	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
18	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	645
19	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDN I TWMEWER	619
20	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	645
21	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	619
22	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
23	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	652
24	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	622
25	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
26	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	647
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28	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	643
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30	KQLQARVLAVERYLKDQQLLGIWGCSGKLICTTTVPWNTSWSNKSLEQIWDNMTWMEWER	645
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EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI

1	EIDNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	683
2	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIVIMIVGGLI	705
3	EIDNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
4	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
5	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	683
6	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	707
7	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	705
8	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
9	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	705
10	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
11	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	684
12	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	707
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14	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	707
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16	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	683
17	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
18	EINNYTGYYIYQLIEESQNQQE-----LLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	700
19	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	679
20	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	705
21	EIDNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	679
22	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
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24	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
25	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLW-WFDITNWLWYIKIFIMIVGGLI	706
26	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	707
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28	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	703
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35	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682
36	EINNYTGYYIYQLIEESQNQQEKNEQELLAWDKWASLWNWFDITNWLWYIKIFIMIVGGLI	707
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40	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	681
41	EINNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	707
42	EISNYTGYYIYQLIEESQNQQEKNEQELLALDKWASLWNWFDITNWLWYIKIFIMIVGGLI	682

GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL

1	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	743
2	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	765
3	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
4	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
5	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	743
6	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
7	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	765
8	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
9	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	765
10	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
11	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	744
12	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVTGFL	767
13	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
14	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
15	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
16	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGLDRPEGIGEEGGERDRDRSDPLVNGFL	743
17	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
18	GLRIVFAVLIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	760
19	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	739
20	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	765
21	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGLDRPEGIGEEGGERDRDRSDPLVNGFL	739
22	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
23	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSALLVNGFL	772
24	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
25	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	766
26	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
27	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	768
28	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	763
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30	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVTGFL	764
31	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	765
32	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	765
33	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	741
34	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVTGFL	765
35	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742
36	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
37	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
38	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	767
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41	GLRIVFTVLSIVNRVRQGYSPLSFQTHFPAQRGPDRPEGIGEEGGERDRDRSAPLVNGFL	767
42	GLRIVFTVLSIVNRVRQGYSPLSFQTHLPAQRGPDRPEGIGEEGGERDRDRSDPLVNGFL	742

	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	
1	ALIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	796
2	TFIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
3	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795
4	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795
5	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	796
6	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
7	TLIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
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9	TLIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
10	TIIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795
11	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	797
12	TLIWSDLRSLCLFSYHRLSDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
13	TLIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
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15	TFIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
16	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	796
17	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795
18	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	813
19	TLIWSDLRSLGLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	792
20	TFIWSDLRSLCLFSYHRLSDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
21	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	792
22	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795
23	TLIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	825
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25	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	819
26	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWSLLQYWSQE	820
27	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	821
28	TLIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	816
29	TLIWSDLRSLCLFSYHRLSDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	821
30	TLIWSDLRSLCLFSYHRLSDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	817
31	TLIWSDLRSLCLFSYHRLSDLLIIITRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
32	TFIWSDLRSLCLFSYHRLSDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
33	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	794
34	TLIWSDLRSLCLFSYHRLSDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	818
35	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795
36	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
37	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
38	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
39	TLIWSDLRSLCLFSYHRLRDLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	796
40	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	794
41	TLIWSDLRSLCLFSYHRLRDSLLIIVTRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	820
42	TLIWSDLRSLCLFSYHRLRDLLIAATRIVELLGR	-----	RGWEVLKYWWNLLQYWSQE	795

LKNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGGLERALL

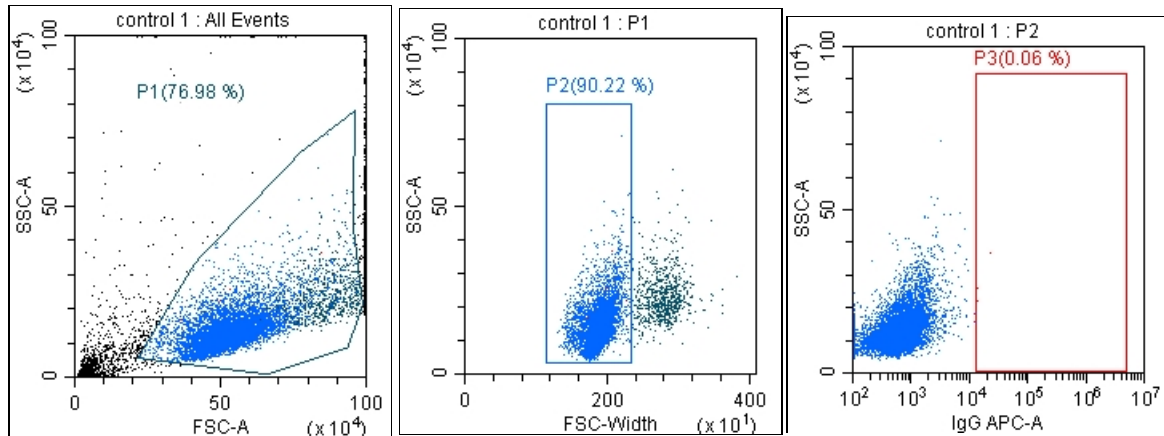
1	LKNSAVSLLNATAIAVAEGTDRVIEVVQRA	CRAI	L	HIPRRIRQGLERALL	846		
2	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				868		
3	LKNSAVSL	F	NATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL		845		
4	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
5	LKNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				846		
6	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				870		
7	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		868		
8	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
9	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		868		
10	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
11	LKNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				847		
12	L	TNSAVSLLNATAIAVAEGTDRVIEVVQRAGRA	V	RHIPRRIRQGLERALL	870		
13	LKKSAVSLLNATAIAVAEGTDRVIEV	AQR	T	GRAIRHIPRRIRQGLERALL	870		
14	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		870		
15	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		870		
16	LKN	S	T	V	SLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL	846	
17	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
18	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				863		
19	LKNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				842		
20	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		868		
21	LKNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				842		
22	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
23	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				875		
24	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
25	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				869		
26	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		870		
27	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		871		
28	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		866		
29	L	TNSAVSLLNATAIAVAEGTDRVIEVVQRAGRA	V	RHIPRRIRQGLERALL	871		
30	L	TNSAVSLLNATAIAVAEGTDRVIEVVQRAGRA	V	RHIPRRIRQGLERALL	867		
31	L	TNSAVSLLNATAIAVAEGTDRVIEVVQRAGRA	V	RHIPRRIRQGLERALL	868		
32	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRA	V	RHIPRRIRQGLERALL		868		
33	LKNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				844		
34	L	TNSAVSLLNATAIAVAEGTDRVIEVVQRAGRA	V	RHIPRRIRQGLERALL	868		
35	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		
36	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		870		
37	LKKSAVSLLNATAIAVAEGTDR	G	I	EVVQR	T	GRAIRHIPRRIRQGLERALL	870
38	LKKSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL				870		
39	LKN	S	V	V	SLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL	846	
40	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			844		
41	LKKSAVSLLNATAIAVAEGTDRVIEVVQR	T	GRAIRHIPRRIRQGLERALL		870		
42	L	RNSAVSLLNATAIAVAEGTDRVIEVVQRAGRAIRHIPRRIRQGLERALL			845		

Supplementary Table 8. HVTN 704 HIV-1 Envs

#	Env ID	Env clone ID**	Arm	VRC01
1	1	H704_3083_040_EsN	VRC01	Resistant
2	2	H704_2625_090EsN		
3	3	H704_1481_220_RE_p002s		
4	4	H704_2643_210_RE_p001s		
5	6	H704_2536_030_RE_p003s	Placebo	Sensitive
6	7	H704_1747_170_RE_con_s		
7	8	H704_0011_240_RE_pb002_s		
8	9	H704_0011_240_RE_pb003_s		
9	10	H704_0011_240_RE_pb001_s		
10	11	V704_1350_750_RE_pbsga001_s		
11	12	H704_1969_210_RE_pbsga002_s		
12	13	H704_1835_150_RE_p002s_2484A		Resistant
13	14	H704_0445_180_RE_con_s		

** All Env-expressing plasmids (Env clones) of AMP HIV-1 strains were kindly provide by Dr. David Montefiori, Duke University.

a Control

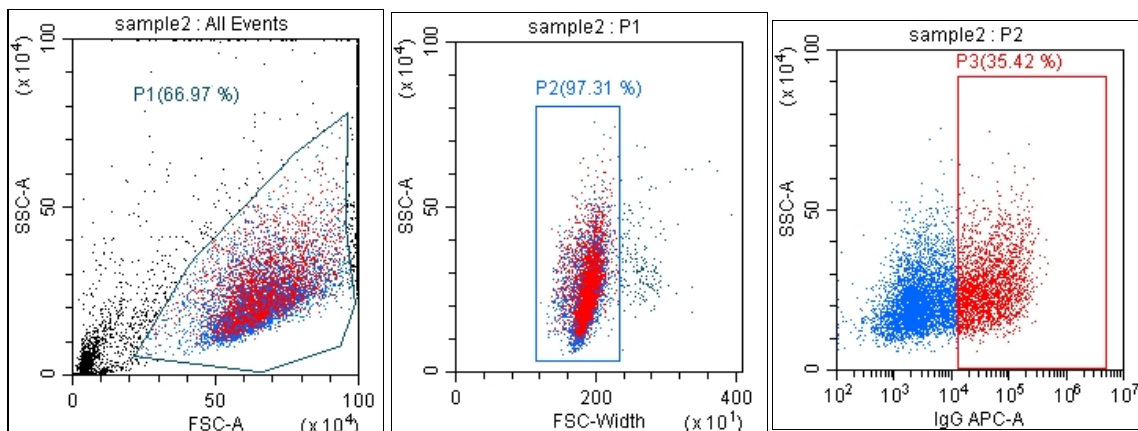


Tube Name: control 1

Sample ID:

Population	Events	% Total	% Parent	Events/ μ L(V)
All Events	10000	100.00 %	100.00 %	1168.90
P1	7698	76.98 %	76.98 %	899.82
P2	6945	69.45 %	90.22 %	811.80
P3	4	0.04 %	0.06 %	0.47

b N6 bnAb



Tube Name: sample2

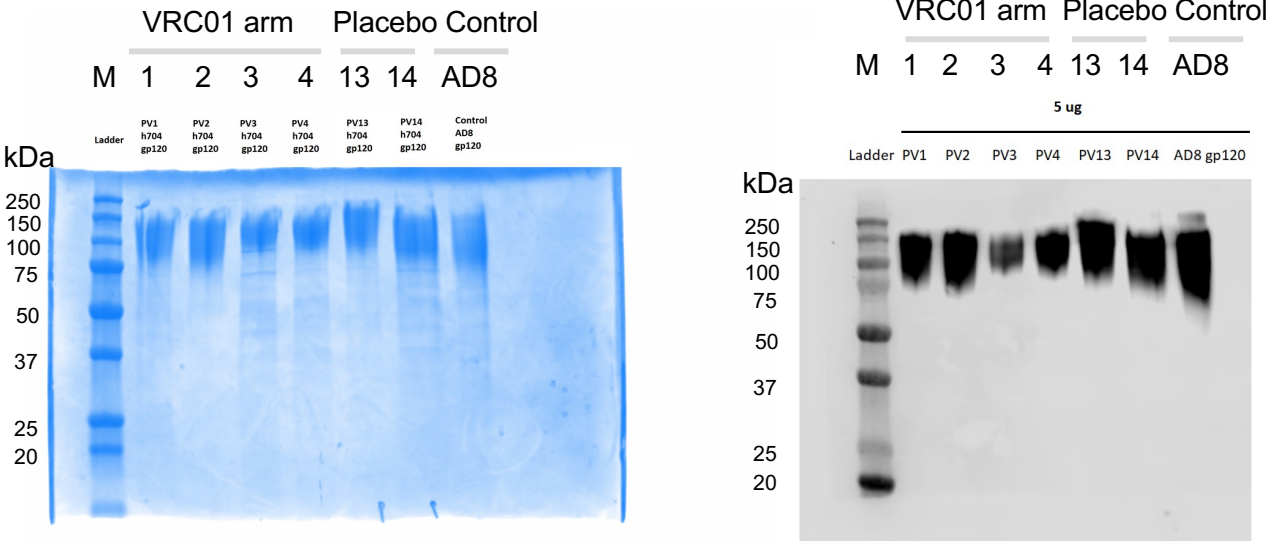
Sample ID:

Population	Events	% Total	% Parent	Events/ μ L(V)
All Events	10000	100.00 %	100.00 %	845.01
P1	6697	66.97 %	66.97 %	565.90
P2	6517	65.17 %	97.31 %	550.69
P3	2308	23.08 %	35.42 %	195.03

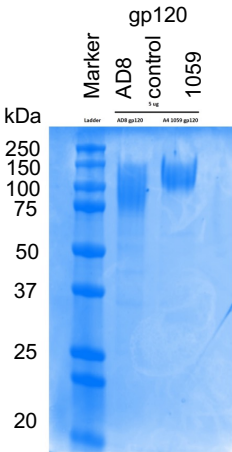
Supplementary A. flow cytometry gating strategy. 293T cells were transfected with Env-expressing plasmid (HIV-1JRFL Δ CT or HIV-1JRFL Δ CT L193R) and binding of different bnAbs to transfected cells was detected with allophycocyanin (APC)-conjugated F(ab')₂ fragment donkey anti-human IgG antibody. Cells were gated first according to side and forward scatter (FSC-A & SSC-A) and then according to SSC-A and FSC-width to exclude doublet cells. Gated 293T cells were then analyzed for the level of APC fluorescence. Control 293T cells (a) and 293T cells transfected with HIV-1JRFL Δ CT L193R env plasmid and incubated with N6 bnAb (b) are shown.

I. Uncropped scans of gel and blot in Supplementary Fig. 8b.

Lanes are labeled as in the manuscript Supplementary Fig. 8b for 6 gp120 proteins (AMP trial) and AD8 gp120 as control. Lane 1 = protein ladder (Bio-Rad).



II. An uncropped scan of gel in Supplementary Fig. 11a



III. An uncropped scan of blot in Supplementary Fig. 12a (manuscript figure shows only lanes 1-5)

	Signal peptide	Changes	501C-605C	I559P	R6	dMPER	64K	73C-561C	201C-433C	316W	535M	658V
SOSIP.664												
v4.1	Natural	64K, 316W										
DS	Natural	201C-433C										
v5.2.8a	Natural	64K, 73C-561C, 201C-433C, 316W, 658V										
TPA WT	TPA											
TPA P22A	TPA-P22											

