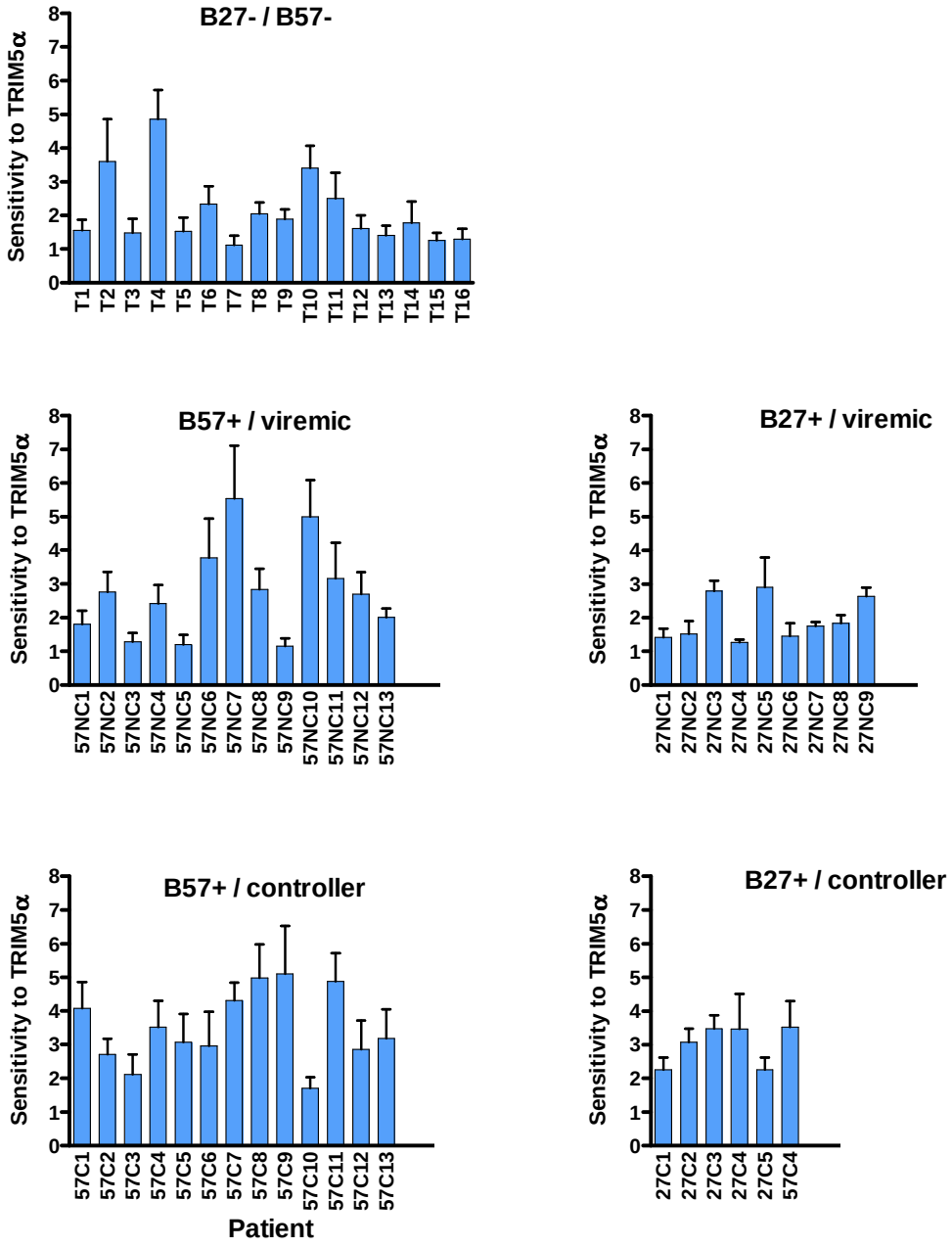

Figure S1. **Sensitivity to hTRIM5a of recombinant viruses from individual patients.** Sensitivity to hTRIM5α was determined by measuring single-cycle infectivity using a luciferase-based assay after infection of U373-X4 cells in which hTRIM5α activity had been inhibited by stable overexpression of untagged hTRIM5γ (U373-X4-TRIM5γ) and in U373-X4 cells that express physiological levels of hTRIM5α (U373-X4-lacZ) and determining the ratio of these results. Results for viruses from the indicated patient groups are shown as the mean ± SD.

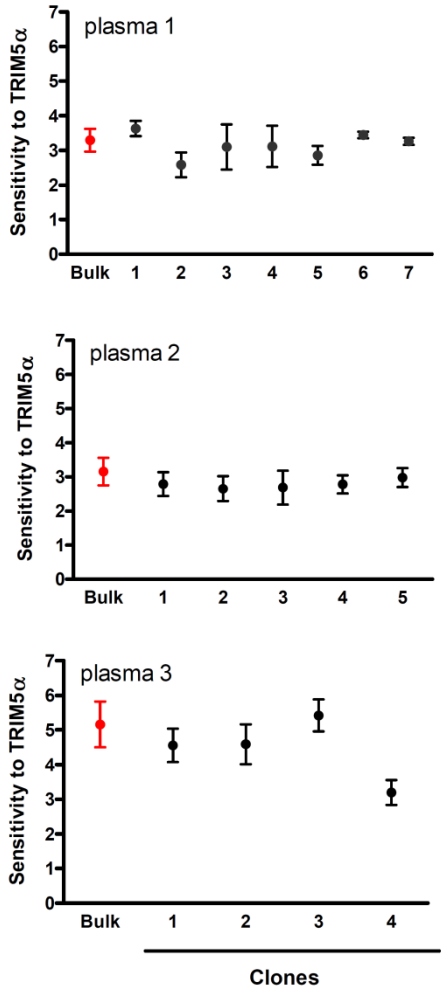

Figure S2. Comparison of hTRIM5a sensitivity of recombinant viruses generated using bulk amplification products and amplification products of individual clonal sequences from the same plasma sample. RNA was extracted from plasma of HIV-1 infected patients containing 2.6 (plasma 1), 1.7 (plasma 2) and 4.6 (plasma 3) $\log_{10}$ copies RNA/ml and used to amplify by nested RT-PCR a viral sequence that spans the region coding CA and containing ≈100 bp upstream and downstream of this region. A portion of the bulk amplification products were saved, and the remainder A-tailed and ligated into the pCR2.1-TOPO vector (Invitrogen) according to the manufacturer's instructions. The same sequence was then amplified using plasmid DNA from individual clones. Amplification products from the bulk reaction (red symbols) and individual clones (black symbols) were used to generate recombinant viruses, and viral sensitivity to hTRIM5a was determined as described in the Materials and Methods. Results are the mean ± SEM for results of 5 (plasmas 1 and 2) or 4 (plasma 3) independent experiments.

Table S1. Clinical characteristics*

Patient	Sex	Age (years)	Viral Load (copies/ml)	CD4+ T-cells/µl	Viral Subtype	HLA-B Genotype		TRIM5α Sensitivity
B27- / B57-								
T1	M	34	1877937	175	AG	4202	7801	1.6
T2	M	32	28545	324	A1	45	58	3.6
T3	M	29	429	296	AG	42	44	1.5
T4	M	34	271	556	B	8	61	4.9
T5	M	36	45600	179	A1	53	81	1.5
T6	M	43	40102	483	B	7	62	2.3
T7	M	38	140563	62	AG	42	53	1.1
T8	M	39	10219	466	AG	49	55	2.1
T9	M	48	23731	580	B	7	44	1.9
T10	F	37	5020	NA	A1	42	53	3.4
T11	F	30	123893	178	AG	3501	5101	2.5
T12	M	30	298332	101	AG	5301	7801	1.6
T13	M	44	390396	75	AG	1503	4202	1.4
T14	M	33	74500	380	B	1402	4402	1.8
T15	F	54	89991	61	AG	0702	1510	1.3
T16	F	57	43920	376	AG	4901	4901	1.3
B57+ / Viremic								
57NC1	M	34	1908	NA	AG	63	5703	1.8
57NC2	M	36	98050	201	B	14	5701	2.8
57NC3	M	35	2845	1031	AG	37	5701	1.3
57NC4	M	38	3908	911	B	1402	5701	2.4
57NC5	F	33	4385	408	AG	5703	5703	1.2
57NC6	M	31	43800	604	B	42	5701	3.8
57NC7	M	44	44188	300	B	8	5701	5.5
57NC8	F	33	71900	205	AE	54	5701	2.8
57NC9	M	58	144087	49	AG	51	5701	1.2
57NC10	M	28	156600	383	B	51	5701	5.0
57NC11	M	37	213514	601	B	35	5701	3.2
57NC12	M	44	380800	86	B	NA	57	2.7
57NC13	M	60	946738	10	B	8	5701	2.0
B57+ / Controller								
57C1	F	42	< 50	448	B	1302	5702	4.1
57C2	M	44	< 63	866	B	4201	5701	2.7
57C3	M	48	199	790	B	50	57	2.1
57C4	M	39	186	957	B	27	57	3.5
57C5	F	47	12	311	B	57	57	3.1
57C6	F	29	6	760	AG	51	57	3.0
57C7	F	43	8	810	B	35	57	4.3
57C8	F	41	72	348	B	57	57	5.0
57C9	F	39	19	642	B	53	57	5.1
57C10	F	42	117	458	AG	63	57	1.7
57C11	M	50	227	412	B	7	57	4.9
57C12	M	48	371	648	B	62	5701	2.9
57C13	M	47	460	302	B	NA	5701	3.2
B27+ / Viremic								
27NC1	M	50	99350	532	D	27	27	1.4
27NC2	M	49	35700	142	AG	13	27	1.5
27NC3	M	35	7586	393	B	27	35	2.8
27NC4	M	30	5697	861	B	27	51	1.3
27NC5	M	53	104500	283	B	27	NA	2.9

27NC6	M	49	677757	9	AE	08	27	1.5
27NC7	F	42	412093	48	B	27	40	1.8
27NC8	M	44	101082	845	AG	2703	5101	1.8
27NC9	M	62	749	521	B	07	27	2.6
B27+ / Controller								
27C1	F	43	4	1534	B	13	27	3.5
27C2	M	51	6	634	B	27	60	3.5
27C3	M	57	275	547	B	14	27	3.1
27C4	M	40	29	774	B	27	61	5.9
27C5	M	47	402	470	B	27	40	2.3

*NA = not available

Table S2. Amino acid sequence of CA

Patient	Viral	Amino Acid in Gag														
	Subtype	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147
B57-																
T1	AG	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	S	I
T2	A	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	S	L
T3	AG	P	V	V	Q	N	A	Q	G	Q	M	V	H	Q	S	I
T4	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
T5	A1	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	A	M
T6	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
T7	AG	P	I	V	Q	N	A	Q	G	Q	M	T	Y	Q	S	M
T8	AG	P	I	V	Q	N	A	Q	G	Q	M	I	H	Q	A	M
T9	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	L
T10	A1	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	S	L
T11	AG	P	I	V	Q	N	A	Q	G	Q	M	I	H	Q	S	M
T12	AG	P	I	V	Q	N	A	Q	G	Q	W	T	H	Q	S	I
T13	AG	P	V	L	Q	N	A	Q	G	Q	M	T	Y	Q	S	M
T14	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
T15	AG	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	S	M
T16	AG	P	I	L	Q	N	A	Q	G	Q	M	A	Y	Q	S	M
B57+ / VIREMIC																
57NC1	AG	P	I	V	Q	N	A	Q	G	Q	M	I	H	Q	P	L
57NC2	B	P	I	V	Q	N	A	Q	G	Q	M	I	H	Q	P	I
57NC3	AG	P	I	V	Q	N	A	Q	G	Q	M	T	Y	Q	S	M
57NC4	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	P	I
57NC5	AG	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	P	M
57NC6	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	A	I
57NC7	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	L
57NC8	AE	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	P	L
57NC9	AG	P	V	V	Q	N	A	Q	G	Q	W	T	H	Q	P	I
57NC10	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	A	L
57NC11	B	P	I	V	R	N	L	Q	G	Q	M	V	H	Q	P	L
57NC12	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	P	I
57NC13	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	P	L
B57+ / CONTROLLER																
57C1	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	L
57C2	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	P	L
57C3	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	S	L
57C4	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	P	I
57C5	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	A	L
57C6	AG	P	I	L	Q	N	A	Q	G	Q	M	A	Y	Q	S	M
57C7	B	P	I	V	Q	N	I	Q	G	Q	M	V	H	Q	P	I
57C8	B	P	I	V	Q	N	I	Q	G	Q	M	V	H	Q	P	I
57C9	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	S	L
57C10	AG	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	P	M
57C11	B	P	I	V	Q	N	I	Q	G	Q	M	V	H	Q	P	L
57C12	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	P	I
57C13	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	L

Patient	Viral	Amino Acid in Gag														
	Subtype	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147
B27+ / VIREMIC																
27NC1	D	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	L
27NC2	AG	P	I	V	Q	N	T	H	G	Q	M	V	H	Q	P	M
27NC3	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	A	I
27NC4	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
27NC5	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
27NC6	AE	P	I	V	Q	N	A	Q	G	Q	M	V	H	Q	P	I
27NC7	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	A	I
27NC8	AG	P	I	V	Q	N	A	Q	G	Q	M	T	H	Q	S	M
27NC9	B	P	I	V	Q	N	M	Q	G	Q	M	V	H	Q	A	L
B27+ / CONTROLLER																
27C1	B	P	I	V	Q	N	I	Q	G	Q	M	V	H	Q	A	L
27C2	B	P	I	V	Q	N	I	Q	G	Q	M	V	H	Q	A	I
27C3	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
27C4	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I
27C5	B	P	I	V	Q	N	L	Q	G	Q	M	V	H	Q	A	I

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S	P	R	T	L	N	A	W	V	K	V	I	E	E	K	A	F	S	P

S	P	R	T	L	N	A	W	V	K	V	I	E	E	K	N	F	S	P
S	P	R	T	L	N	A	W	V	K	V	I	E	E	K	A	F	S	P
S	P	R	T	L	N	A	W	V	K	V	I	E	E	K	A	F	S	P
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S	P	R	T	L	N	A	W	V	K	V	V	E	E	K	A	F	S	P
S	P	R	T	L	N	A	W	V	K	V	V	E	E	K	A	F	S	P
S	P	R	T	L	N	A	W	V	K	V	I	E	E	K	A	F	S	P

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E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
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E	V	I	P	M	F	T	A	L	S	E	G	A	P	P	Q	D	L	N
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E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N

E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
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E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	H	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
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E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	G	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N

E	V	I	P	M	F	A	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	V	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N

167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	A	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	I	I	P	M	F	A	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	T	A	L	S	E	G	A	T	P	Q	D	L	N

E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N
E	V	I	P	M	F	S	A	L	S	E	G	A	T	P	Q	D	L	N

186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
S	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	I	G	G	H	Q	A	A	M	Q	M	L	K	D	T

186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	I	G	G	H	Q	A	A	M	Q	M	L	K	E	T

186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	I	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T

186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
M	M	L	N	I	V	G	G	H	Q	A	A	M	Q	M	L	K	D	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T

T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	V	G	G	H	Q	A	A	M	Q	M	L	K	E	T
T	M	L	N	T	I	G	G	H	Q	A	A	M	Q	M	L	K	E	T

205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
I	N	D	E	A	A	E	W	D	R	T	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	V	E	W	D	R	A	H	P	V	H	A	G	P	A
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	P	Q	A	G	P	F
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	D	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	F
I	N	D	E	A	A	D	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	I	H	P	V	Q	A	G	P	I
I	N	D	E	A	A	E	W	D	R	T	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	T	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	I	H	P	V	H	A	G	P	N
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	I	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	H

I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	P	Q	A	G	P	I
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	P	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	T	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	P	Q	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	Q	A	G	P	V

I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	I	H	P	V	H	A	G	P	N
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	T	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I

205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	N
I	N	E	E	A	A	E	W	D	R	L	H	P	V	Q	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	V	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	A	Q	A	G	P	V
I	N	E	E	A	A	E	W	D	R	V	H	P	V	Q	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I

I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	V
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	E	E	A	A	E	W	D	R	L	H	P	V	H	A	G	P	I
I	N	D	E	A	A	E	W	D	R	L	H	P	V	P	A	G	P	I

224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	L	R	E	P	R	G	S	D	I	A	G	T	T	S	S
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
Q	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	A	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	I	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	A	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T

P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	I	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	I	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	I	R	E	P	R	G	S	D	I	A	G	T	T	S	N

A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	I	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	N
A	P	G	Q	L	R	E	P	R	G	S	D	I	A	G	T	T	S	N

224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	V	T	S	T
P	P	G	Q	I	R	E	P	R	G	S	D	I	A	G	V	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
P	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	V	T	S	T
A	P	G	Q	M	R	D	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T

A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	S
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	E	P	R	G	S	D	I	A	G	T	T	S	T
A	P	G	Q	M	R	D	P	R	G	S	D	I	A	G	S	T	S	T

243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	G	N	P	P	V	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
V	Q	E	Q	I	A	W	M	T	S	N	P	P	V	P	V	G	E	I
L	Q	E	Q	V	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	V	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	H	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	G	N	P	S	I	P	V	G	E	I

L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	N	N	P	P	I	P	V	G	E	I
P	Q	E	Q	I	G	W	M	T	S	N	P	P	T	P	V	G	E	I
L	Q	E	Q	I	T	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	T	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	N	N	P	P	I	P	V	G	D	I
P	Q	E	Q	I	G	W	M	T	G	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	H	N	P	P	I	P	V	G	E	I

L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	H	N	P	P	I	P	V	G	E	I
L	R	E	Q	I	D	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	E	W	M	T	S	N	P	P	T	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	T	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	G	N	P	P	I	P	V	G	D	L
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	H	N	P	P	I	P	V	G	E	I

243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	A	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	H	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	T	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	D	V
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	S	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	H	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	N	N	P	P	I	P	V	G	E	I
L	Q	E	Q	I	G	W	M	T	G	N	P	A	I	P	V	G	E	I

262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	R	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	R	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	A
Y	K	R	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V

Y	R	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	R	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	T
Y	R	R	W	L	I	L	G	L	H	K	I	V	K	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	I
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T

Y	K	K	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	S
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	K	W	I	V	L	G	L	H	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	A
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T

262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
Y	K	K	W	I	V	M	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	K	W	I	V	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	M	G	L	N	K	V	V	K	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	K	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	K	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	V
Y	R	R	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	V
Y	K	R	W	I	I	M	G	L	N	K	I	V	K	M	Y	S	P	I

Y	K	R	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	S
Y	K	R	W	I	I	L	G	L	N	K	I	V	R	M	Y	S	P	T
Y	K	R	W	I	I	M	G	L	N	K	V	V	K	M	Y	S	P	T
Y	K	R	W	I	I	M	G	L	N	K	I	V	R	M	Y	S	P	V

281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
G	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R

S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
G	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
G	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	S	F	R	D	Y	V	D	R

S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R

281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
N	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R

S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	K	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R
S	I	L	D	I	R	Q	G	P	K	E	P	F	R	D	Y	V	D	R

300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	G	W	M	T
F	F	K	C	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	A	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	G	W	M	T
F	F	K	T	L	R	A	E	Q	G	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	F	K	I	L	R	A	E	Q	A	T	Q	A	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	S	S	Q	E	V	K	N	W	M	T

F	F	K	C	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	C	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T

F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	F	K	A	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T

300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	F	K	T	L	R	A	E	Q	A	T	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T

300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	D	V	K	N	W	M	T
F	Y	K	T	L	R	A	E	Q	A	S	Q	E	V	K	T	W	M	T

319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	A	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
D	T	L	L	V	Q	N	A	N	P	D	C	K	N	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
D	T	L	M	V	Q	N	A	N	P	D	C	K	T	I	L	R	S	L
E	T	L	L	V	Q	N	S	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
D	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L

E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	H	N	A	N	P	D	C	K	T	I	L	K	A	L
D	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	S	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L

E	T	L	L	I	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	R	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	I	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	M	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	S	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L

319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337
E	T	L	L	I	Q	H	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	R	S	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
D	T	L	L	V	Q	N	A	N	P	D	C	K	S	I	L	R	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L

E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	S	N	P	D	C	K	T	I	L	K	A	L
E	T	L	L	V	Q	N	A	N	P	D	C	K	T	I	L	K	A	L

338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	T	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	Q	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	S	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	T	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	S	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P

338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356
G	P	G	A	S	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	S	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	Q	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	T	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	S	L	E	E	M	M	T	A	C	Q	G	V	G	G	P

338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	G	A	S	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P

338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	S	A	P	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	T	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	S	A	C	Q	G	V	G	G	P
G	P	G	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P

G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P
G	P	A	A	T	L	E	E	M	M	T	A	C	Q	G	V	G	G	P

357	358	359	360	361	362	363
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
A	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
S	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
S	H	K	A	R	V	L
S	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
S	H	K	A	R	V	L

357	358	359	360	361	362	363
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L
S	H	K	A	R	V	L
G	H	K	A	R	V	L

S	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	V	L
G	H	K	A	R	I	L
S	H	K	A	R	V	L