

Supplementary Table 5: Genic variation among sequenced HSV-1 samples. Table includes information on single nucleotide consensus variants and minor variants that are present in 10% or more of reads in at least one sample. Pairs of variants highlighted in the same color represent one variant that is located in two overlapping CDS.

CDS	CDS Nucleotide Position	Reference Allele	Frequency of reference allele within individual samples									Alternative Allele	Variant Type	Reference Amino Acid	Alternative Amino Acid	G → A	C → T	APOBEC3 Dinucleotide*
			Brother	Sample 1	Sample 2	Sample 3	Sample 4	Sample 6	Sample 8	Sample 9	Sample 11							
UL1	21	C	1	1	0.733	1	1	1	1	1	1	1	T	S			Yes	TC
UL1	98	C	1	1	0.898	1	1	1	1	1	1	1	T	NS	A	V	Yes	GC
UL1	647	G	1	1	0.879	1	1	1	1	1	1	1	A	NS	R	H	Yes	GC
UL2	100	G	1	1	0.879	1	1	1	1	1	1	1	A	NS	A	T	Yes	GC
UL2	212	G	1	1	1	1	1	1	1	0.73	1	1	A	NS	R	H	Yes	GC
UL3	103	G	1	1	1	1	1	1	1	1	1	0.804	C	NS	D	H		
UL4	53	G	0	1	1	1	1	1	1	1	1	1	A	NS	S	L	Yes	TC
UL5	1,302	C	1	1	1	0.737	1	1	1	1	1	1	A	NS	K	N		
UL6	449	G	1	1	1	1	1	0	1	1	1	1	A	NS	G	D	Yes	GC
UL6	539	G	1	1	1	1	1	1	0.447	1	1	1	A	NS	G	D	Yes	AC
UL7	423	T	1	1	0.841	1	1	1	1	1	1	1	C	S				
UL8	42	G	1	1	1	0.875	1	1	1	1	1	1	A	S			Yes	GC
UL8	832	A	0.802	1	1	1	1	1	1	1	1	1	G	NS	W	R		
UL8	1,285	G	0	0	0	0	0.154	0	0	1	1	1	A	S			Yes	GC
UL9	1,359	C	1	0.836	1	1	1	1	1	1	1	1	T	S			Yes	GC
UL9	1,957	G	1	1	1	1	1	1	1	1	0	1	A	NS	R	C	Yes	GC
UL9	2,235	G	1	0.887	0.892	1	1	1	1	1	1	1	T	S				
UL10	507	C	1	1	0.787	1	1	1	1	0.828	1	1	T	S			Yes	AC
UL10	780	C	1	1	1	1	1	1	1	0.509	1	1	T	S			Yes	TC
UL10	1,139	C	0.762	1	1	1	1	1	1	1	1	1	G	NS	S	W		
UL12	541	C	0.889	1	1	1	1	1	1	1	1	1	T	NS	E	K	Yes	TC
UL12	575	C	1	1	1	0.736	1	1	1	1	1	1	T	NS	R	Q	Yes	CC
UL12	896	C	1	1	1	1	1	1	1	0.788	1	1	T	NS	G	D	Yes	GC
UL12	909	G	1	1	1	1	1	1	1	0.82	1	1	A	S			Yes	CC
UL12	1,459	G	1	0.125	0.338	0	0	0	0	1	0	0	A	NS	R	C	Yes	AC
UL13	167	A	0.183	0	0	0	0	0	0	0	0	0	C	NS	V	G		
UL13	588	C	0	0	0	0	0	0	0	1	1	1	T	S			Yes	AC
UL13	1,270	A	1	0	0.393	0	0	0	0	1	0	0	G	NS	F	L		
UL14	580	A	0.183	0	0	0	0	0	0	0	0	0	C	NS	S	A		
UL15	23	C	1	1	1	1	1	1	0.852	1	1	1	T	NS	S	F	Yes	TC
UL15	465	G	1	1	1	0.793	1	1	1	1	1	1	A	S			Yes	GC
UL15	542	G	1	1	1	1	1	1	1	0.792	1	1	C	NS	G	A		
UL17	1,262	G	1	0.861	1	0.886	1	1	1	1	1	1	A	NS	A	V	Yes	GC
UL17	1,793	G	0	1	1	1	1	1	1	1	1	1	A	NS	T	M	Yes	AC
UL19	2,036	C	1	1	1	1	1	1	1	0	1	1	T	NS	G	E	Yes	CC
UL19	2,711	C	1	1	1	1	1	1	1	0.698	1	1	T	NS	R	H	Yes	GC
UL19	4,036	C	1	0.875	0.853	1	1	1	1	1	1	1	T	NS	A	T	Yes	GC
UL20	658	C	1	1	1	1	1	1	1	0.859	1	1	T	NS	V	I	Yes	AC
UL21	783	G	1	1	1	1	1	0	1	1	1	1	A	S			Yes	GC
UL22	625	G	1	1	1	1	0.225	1	1	1	1	1	A	S			Yes	GC
UL22	1,438	G	1	1	1	1	1	0	1	1	1	1	A	S			Yes	GC
UL22	1,616	T	1	0.644	0.823	1	1	1	1	0.425	1	1	C	NS	Q	R		
UL22	1,650	G	0.9	1	1	1	1	1	1	1	1	1	T	S				
UL22	1,744	G	1	1	1	1	1	0.874	1	1	1	1	A	NS	L	F	Yes	GC
UL23	27	G	1	1	1	0.898	1	1	1	1	1	1	A	S			Yes	AC
UL23	419	G	1	0.568	0.797	0.533	1	1	0.256	1	1	1	A	NS	A	V	Yes	GC
UL23	717	A	0	0	0	0	0	0	1	0	0	0	G	S				
UL23	765	C	0.852	1	1	1	1	1	1	1	1	1	A	NS	W	C		
UL23	966	C	1	1	1	1	1	0	1	1	1	1	T	NS	M	I	Yes	GC
UL23	1,094	G	1	1	1	1	1	1	0	1	1	1	A	NS	A	V	Yes	GC
UL24	40	G	1	1	1	0.898	1	1	1	1	1	1	A	NS	V	M	Yes	AC
UL25	165	A	0.123	0	0	0	0	0	0	0	0	0	G	S				
UL25	1,251	T	1	1	1	1	1	1	0	1	1	1	C	S				
UL25	1,686	C	1	0.127	0	0	0	0	0	1	0	0	T	S			Yes	AC
UL26	1,135	G	1	1	1	1	1	1	0	1	1	1	A	NS	A	T	Yes	GC
UL27	181	C	1	1	1	0.677	0	0	0.69	1	1	1	T	NS	A	T	Yes	GC
UL27	268	C	1	1	1	1	1	1	0.511	1	1	1	T	NS	V	I	Yes	AC
UL27	438	G	0	1	1	1	1	1	1	1	1	1	A	S			Yes	TC
UL28	353	G	1	1	1	1	1	1	0	1	1	1	A	NS	A	V	Yes	GC
UL28	473	A	1	0.724	1	1	1	1	1	1	1	1	G	NS	L	P		
UL29	348	G	1	1	1	1	1	1	0	1	1	1	A	S			Yes	GC
UL29	358	G	1	1	1	1	1	1	0	1	1	1	A	NS	R	C	Yes	AC
UL29	2,193	G	1	1	1	1	1	1	1	1	1	0	A	S			Yes	TC
UL29	2,851	C	1	1	1	1	1	1	1	0.78	1	1	T	NS	A	T	Yes	GC
UL29	2,914	C	1	1	0.7	1	1	1	1	1	1	1	T	NS	V	I	Yes	AC
UL29	2,937	G	1	1	1	1	0.24	1	1	1	1	1	A	S			Yes	TC
UL30	601	A	0	0	0	0	0	0	0	1	0	0	G	NS	T	A		
UL30	974	C	1	1	1	1	1	0.814	1	1	1	1	T	NS	T	M	Yes	AC
UL30	1,158	C	0	1	1	1	1	1	1	1	1	1	T	S			Yes	AC
UL30	1,591	G	1	1	1	1	1	1	1	0.115	1	1	A	NS	D	N	Yes	TC
UL30	1,635	A	1	1	1	1	1	1	0.878	1	1	1	G	S				
UL30	2,462	C	1	1	1	1	1	0	1	1	1	1	T	NS	T	M	Yes	AC
UL30	3,406	A	1	1	1	1	1	0	1	1	1	1	G	NS	K	E		
UL30	3,671	G	1	1	1	0.867	1	1	1	1	1	1	A	NS	R	H	Yes	AC

CDS	CDS Nucleotide Position	Reference Allele	Frequency of reference allele within individual samples								Alternative Allele	Variant Type	Reference Amino Acid	Alternative Amino Acid	G -> A	C -> T	APOBEC3 Dinucleotide*	
			Brother	Sample 1	Sample 2	Sample 3	Sample 4	Sample 6	Sample 8	Sample 9								Sample 11
UL31	903	G	1	1	1	0.867	1	1	1	1	1	A	S			Yes		AC
UL32	795	G	1	1	1	0.836	1	1	1	1	1	A	S			Yes		GC
UL32	937	C	1	1	1	1	1	1	1	1	0.777	T	NS	A	T		Yes	GC
UL32	1,183	C	1	1	1	1	1	1	1	1	0.255	T	NS	D	N		Yes	TC
UL32	1,416	C	0	0.104	0.411	0	0.786	0	0	1	1	T	S				Yes	GC
UL33	325	C	1	0	0.473	0.144	1	0	0	1	1	T	NS	R	C		Yes	CC
UL35	53	G	1	1	1	1	1	1	0.764	1	1	A	NS	R	Q	Yes		CC
UL36	1,282	C	1	1	1	1	1	1	0.9	1	1	G	NS	A	P			
UL36	1,402	G	1	1	1	1	1	1	1	1	0.745	A	NS	P	S	Yes		GC
UL36	1,635	C	0.854	1	1	1	1	1	1	1	1	A	S					
UL36	1,771	C	0.897	1	1	1	1	1	1	1	1	G	NS	E	Q			
UL36	2,737	T	1	1	1	0.839	1	0	1	1	1	C	NS	I	V			
UL36	2,956	C	0	0	0.145	0	0	0	0	1	0	T	NS	A	T		Yes	GC
UL36	3,768	C	0	1	1	1	1	1	1	1	1	T	S				Yes	TC
UL36	4,760	C	0.895	1	1	1	1	1	1	1	1	T	NS	R	Q		Yes	TC
UL36	6,774	A	1	1	1	1	1	0	1	1	1	G	S					
UL36	7,140	G	1	1	0.732	1	1	1	1	1	1	A	S			Yes		AC
UL36	8,474	G	1	1	1	0.848	1	1	1	1	1	A	NS	P	L	Yes		CC
UL36	8,945	G	1	1	1	0.882	1	1	1	1	1	A	NS	A	V	Yes		GC
UL37	829	G	1	1	1	0.499	1	1	1	1	1	T	NS	L	M			
UL37	2,031	C	1	1	0.77	1	1	1	1	1	1	T	S				Yes	TC
UL37	3,134	G	1	1	1	1	1	1	0.488	1	1	A	NS	A	V	Yes		GC
UL39	134	A	1	1	1	1	1	1	0.854	1	1	G	NS	Y	C			
UL39	304	G	1	1	1	1	1	1	0.811	1	1	A	NS	A	T	Yes		GC
UL39	369	C	1	1	0.651	0.841	1	1	1	1	1	T	S				Yes	TC
UL39	1,351	G	0	0	0	0	0	0	0	1	1	T	NS	V	L			
UL39	2,388	C	0.879	1	1	1	1	1	1	1	1	T	S				Yes	TC
UL40	738	C	1	0	0.148	0.133	0	0	0.123	1	0	T	S				Yes	GC
UL40	937	C	1	0	0.151	0	0	0	0	1	1	T	S				Yes	GC
UL41	392	G	1	1	1	1	1	0	1	1	1	T	NS	S	Y			
UL41	841	T	1	1	1	1	1	1	0.9	1	1	C	NS	T	A			
UL42	573	G	1	1	1	1	1	0	1	1	1	A	S			Yes		TC
UL42	1,002	C	1	1	1	1	1	1	1	0.88	1	T	S				Yes	CC
UL42	1,230	G	1	1	1	1	1	1	1	1	0	T	NS	K	N			
UL43	1,151	C	1	1	1	1	1	1	1	1	0	T	NS	A	V		Yes	GC
UL46	963	G	1	1	1	0.845	1	1	0.887	1	1	A	S			Yes		CC
UL47	401	A	1	1	1	0.863	1	1	1	1	1	C	NS	L	W			
UL47	759	C	1	1	1	1	1	0	1	1	1	T	S				Yes	GC
UL47	1,497	G	1	1	0.872	1	1	1	1	1	1	A	S			Yes		GC
UL47	1,884	G	0	0	0.191	0	0	0	0.116	1	0	A	S			Yes		CC
UL49	372	G	1	0.697	1	0.833	1	0	0.372	1	1	A	S			Yes		CC
UL49A	49	G	0	0	0.168	0	0	0	0	1	1	A	NS	L	F	Yes		GC
UL50	319	G	1	1	1	1	0.197	1	1	1	1	A	NS	V	M	Yes		AC
UL50	556	C	1	1	1	1	1	1	0.435	1	1	T	NS	R	W		Yes	GC
UL50	715	G	1	1	1	1	1	0	1	1	1	A	NS	V	M	Yes		AC
UL50	1,080	G	1	1	1	1	1	1	0.506	1	1	A	S			Yes		GC
UL52	845	G	1	1	0.857	1	1	1	1	1	1	A	NS	R	H	Yes		GC
UL52	2,325	C	0	0	0.207	0	0	0	0	1	1	T	S				Yes	AC
UL54	1,003	A	1	1	1	1	0.889	1	1	1	1	G	NS	T	A			
UL55	57	G	0.765	1	1	1	1	1	1	1	1	T	S					
UL56	59	G	1	1	1	1	1	0	1	1	1	A	NS	A	V	Yes		GC
US3	988	G	1	1	1	1	0.136	1	1	1	1	A	NS	V	M	Yes		AC
US3	1,027	G	1	0.753	0.829	1	1	1	1	1	1	A	NS	A	T	Yes		GC
US4	668	G	1	1	1	0.824	1	0	1	1	1	A	NS	R	H	Yes		GC
US5	112	G	1	1	1	1	1	1	0.488	1	1	A	NS	A	T	Yes		GC
US6	75	C	1	1	1	1	1	1	1	1	0.753	T	S				Yes	GC
US6	91	G	0	0	0	0	0	0	0	0	1	A	NS	D	N	Yes		TC
US6	645	G	1	1	1	1	1	0	1	1	1	A	S			Yes		AC
US6	662	G	1	0.857	1	1	1	1	1	1	1	A	NS	R	H	Yes		GC
US6	938	C	1	0.882	0.765	0.636	0	1	0.801	1	1	T	NS	P	L		Yes	CC
US6	1,012	A	1	1	1	1	1	1	1	0	1	C	NS	N	H			
US8A	300	G	1	1	1	1	1	0	1	1	1	A	S			Yes		GC
US9	55	C	1	1	1	1	1	0	1	1	1	T	NS	P	S		Yes	GC
US10	258	G	1	0.826	0.816	0.805	0.755	0.783	0.232	0.849	0.83	T	S					
US10	397	C	1	1	1	1	1	1	0.324	1	1	T	NS	A	T		Yes	GC
US10	666	G	1	0.9	1	1	1	1	1	1	1	A	S			Yes		AC
US11	409	G	1	0.826	0.816	0.805	0.755	0.783	0.232	0.849	0.83	T	S					

*APOBEC3 Dinucleotide: APOBEC3 enzymes act preferentially on cytidines preceded by a T and to a lesser extent C. For variants that represent a C -> T change, this column gives the dinucleotide context for that C -> T change. For G -> A variants, this column gives the dinucleotide context for the C -> T change on the complement strand.