

VI

HIV-2/SIV Proteins

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VI-1 Introduction

The number of HIV-2 and SIV sequences is growing much more slowly than for HIV-1, particularly for sequences of complete or near-complete genomes. In selecting the set of sequences to present here, we eliminated some sequences derived from the same sample, patient, or isolate. We further omitted a few that were very closely related. Within each of the protein alignments, we have included a slightly different set of sequences, drawing on both genome-length and subgenomic fragments in order to best represent viral diversity. Thus for HIV-2, we selected A and B genomes and subgenomic fragments that best represent the diversity of the virus in that region. We also included a single AB CRF and both genomes available from other HIV-2 groups (G and U).

In these alignments, as in the database, we label sequences according to their native host. Thus, transfers of SIVsmm into humans have produced HIV-2 groups A through G. Unintentional transfers of SIVsmm into captive macaques are named according to the receptive host (Rhesus macaques = mac, Stump-tailed macaques = stm, and Pig-tailed macaques = mne). However, intentional, experimental cross-species transfers of virus remain labeled as being from the original host (e.g., HIV-1 injected into a chimpanzee is labeled HIV-1, not SIVcpz; and SIVsmm injected into a Rhesus macaque is labeled SIVsmm, not SIVmac).

VI-2 Annotated features

Features of HIV-2 annotated in the alignment that follows.

Feature	Protein	Location	Page
Gag p15 start	Gag	1	378
p15 end	Gag	135	378
p27 start	Gag	136	378
p27 end	Gag	364	380
p2 start	Gag	365	380
p2 end	Gag	381	380
p8 start	Gag	382	380
p8 end	Gag	433	380
p1 start	Gag	434	380
p1 end	Gag	447	380
p6 start	Gag	448	380
PTAP motif	Gag	458-461	380
PSAP in HIV-2 B, U	Gag	476-479	380
p6 end	Gag	511	381
Gag end	Gag	511	381
Pol p15 start	Pol	1	382
p15 end	Pol	67	382
protease start	Pol	68	382
protease end	Pol	166	383
p51 RT start	Pol	167	383
D catalytic site	Pol	276	383
DD catalytic site	Pol	351	384
p51 RT end	Pol	605	385
p15 RNase H start	Pol	606	385
p15 RNase H end	Pol	725	386
p31 Integrase start	Pol	726	386
p31 Integrase end	Pol	1020	388
Pol end	Pol	1020	388
Vif start	Vif	1	389
Vif end	Vif	215	390
Vpx start	Vpx	1	391
Vpx end	Vpx	113	391
Vpr start	Vpr	1	392
Vpr end	Vpr	102	392
Tat start	Tat	1	393
exon 1 end	Tat	99	393
exon 2 start	Tat	100	393
Tat end	Tat	131	393
Rev start	Rev	1	394
exon 1 end	Rev	24	394
exon 2 start	Rev	25	394
Rev end	Rev	108	395
Env start	Env	1	396
signal peptide end	Env	22	396
gp120 start	Env	23	396
V1	Env	113-167	396
V2	Env	169-211	397
V3	Env	311-344	397

Feature	Protein	Location	Page
V3 tip	Env	328-334	398
V4	Env	402-432	398
V5	Env	472-477	399
gp120 end	Env	525	399
gp41 start	Env	526	399
Env end	Env	880	401
gp41 end	Env	880	401
Nef start	Nef	1	402
R17Y mutation	Nef	17	402
max HIV-1 similarity	Nef	153-182	402
premature stop in Mac239	Nef	93	402
normal Nef end	Nef	264	403

VI-3 Sequences

Sequences included in the HIV-2/SIV protein alignments.

Name	Accession	Proteins	Author	Reference
MAC.US.x.239	M33262	All	Kestler, H.	<i>Science</i> 248 (4959):1109-1112 (1990)
A.CI.88.UC2	U38293	All	Barnett, S.W.	<i>Virology</i> 222 (1): 257-61 (1996)
A.DE.x.BEN	M30502	All	Kirchhoff, F.	<i>Virology</i> 177 (1):305-311 (1990)
A.DE.x.PEI2_KR_KRCG	U22047	All	Kraus, G.	<i>ARHR</i> 14 (1); 65-77 (1998)
A.GH.x.GH1	M30895	All	Hasegawa, A.	<i>ARHR</i> 5 (6):593-604 (1989)
A.GM.87.D194	J04542	All	Kuehnel, H.	<i>Proc Natl Acad Sci USA</i> 86 (7):2383-2387 (1989)
A.GM.x.ISY_SBL_6669_85	J04498	All	Franchini, G.	<i>Proc Natl Acad Sci USA</i> 86 (7):2433-2437 (1989)
A.GM.x.MCN13	AY509259	All	Schmitz, C.	<i>J Virol</i> 78 (4):2006-2016 (2004)
A.GM.x.MCR35	AY509260	All	Schmitz, C.	<i>J Virol</i> 78 (4):2006-2016 (2004)
A.GW.86.FG_clone_NIHZ	J03654	All	Zagury, J.F.	<i>Proc Natl Acad Sci USA</i> 85 (16):5941-5945 (1988)
A.GW.87.CAM2CG	D00835	All	Tristem, M.	<i>J Gen Virol</i> 72 (PT 3):721-724 (1991)
A.GW.x.MDS	Z48731	All	Becker	Unpublished
A.IN.07.NNVA	EU980602	All	Gurjar, S.R.	<i>JAIDS</i> 52 (3); 329-35 (2009)
A.IN.95.CRIK_147	DQ307022	All	Santhosh, C.V.	<i>ARHR</i> 24 (10); 1315-7 (2008)
A.PT.x.ALI	AF082339	All	Reeves, J.D.	<i>J Virol</i> 73 (9); 7795-804 (1999)
A.SN.85.ROD	M15390	All	Clavel, F.	<i>Nature</i> 324 (6098):691-695 (1986)
B.CI.88.UC1	L07625	All	Barnett, S.W.	<i>J Virol</i> 67 (2):1006-1014 (1993)
B.CI.x.20_56	AB485670	All	Takekawa	Unpublished
B.CI.x.EHO	U27200	All	Rey-Cuille, M.A.	<i>Virology</i> 202 (1):471-476 (1994)
B.GH.86.D205_ALT	X61240	All	Dietrich, U.	<i>Nature</i> 342 (6252):948-950 (1989)
B.JP.01.KR020_IMCJ_KR020_1	AB100245	All	Kusagawa, S.	<i>ARHR</i> 19 (11):1045-1049 (2003)
G.CI.92.Abt96	AF208027	All	Brennan, C.A.	<i>ARHR</i> 13 (5):401-404 (1997)
AB.CM.03.03CM_510_03	EU028345	All	Yamaguchi, J.	<i>ARHR</i> 24 (1):86-91 (2008)
H2_01_AB.CI.90.7312A	L36874	All	Gao	Unpublished
H2_01_AB.JP.04.04JP_NMC307	AB499693	All	Ibe, S.	<i>JAIDS</i> 54 (3):241-247 (2010)
H2_01_AB.JP.07.07JP_NMC716	AB499694	All	Ibe, S.	<i>JAIDS</i> 54 (3):241-247 (2010)
H2_01_AB.JP.08.08JP_NMC842	AB499695	All	Ibe, S.	<i>JAIDS</i> 54 (3):241-247 (2010)
U.FR.96.12034	AY530889	All	Damond, F.	<i>ARHR</i> 20 (6):666-672 (2004)

Name	Accession	Proteins	Author	Reference
MAC.US.x.17EC1	AY033233	All	Anderson, M.G.	<i>Virology</i> 195 (2):616-626 (1993)
MAC.US.x.17EFR	AY033146	All	Flaherty, M.T.	<i>J Virol</i> 71 (8):5790-5798 (1997)
MAC.US.x.1937	AY611495	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.2065	AY611493	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.251_1A11	M76764	All	Marthas, M.L.	<i>J Med Primatol</i> 18 (3-4):311-9 (1989)
MAC.US.x.251_32H_PJ5	D01065	All	Rud, E.W.	(in) Brown, F, Chanock, RM and Ginsberg, HS(Eds); VACCINES 92: MODERN APPROACHES TO NEW VACCINES INCLUDING PREVENTION OF AIDS: 229-235 ; Cold Spring Harbor Laboratory Press, New York (1992)
MAC.US.x.251_BK28	M19499	All	Hirsch, V.	<i>Cell</i> 49 (3):307-319 (1987)
MAC.US.x.80035	AY611486	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.81035	AY599200	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.85013	AY611490	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.87082	AY600249	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.92050	AY603959	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.92077	AY599201	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.93057	AY611492	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.93062	AY607704	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.95058	AY611494	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.95086	AY607703	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.95112	AY588946	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96016	AY607701	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96020	AY611488	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96072	AY611491	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96081	AY597209	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96093	AY611489	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96114	AY588945	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96123	AY611487	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.96135	AY607702	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.97009	AY599199	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.97074	AY599198	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.MM142_IVMXX	Y00277	All	Chakrabarti, L.	<i>Nature</i> 328 (6130):543-547 (1987)
MAC.US.x.SMM142_patent	BD131285	All	Alizon, M.	Patent: JP 2002030099-A 2 29-JAN-2002; INSTITUT PASTEUR
MAC.US.x.r80025	AY576480	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MAC.US.x.r90131	AY576481	All	O'Connor, D.H.	<i>J Virol</i> 78 (24):14012-14022 (2004)
MNE.US.82.MNE_8	M32741	All	Kimata, J.T.	<i>J Virol</i> 72 (1):245-256 (1998)
MNE.US.x.MNE027	U79412	All	Kimata, J.T.	<i>J Virol</i> 72 (1):245-256 (1998)
SMM.CI.79.SIVsmCI2	JX860430	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.LR.89.SIVsmLIB1	JX860431	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.SL.92.SIVsmSL92A	JX860432	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.SL.92.SL92B	AF334679	All	Chen, Z.	<i>J Virol</i> 70 (6):3617-3627 (1996)
SMM.US.04.G078	JX860415	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.G932	JX860416	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M919	JX860417	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M922	JX860418	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M923	JX860419	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M926	JX860420	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)

Name	Accession	Proteins	Author	Reference
SMM.US.04.M934	JX860421	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M935	JX860422	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M940	JX860423	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M946	JX860424	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M947	JX860425	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M949	JX860426	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M950	JX860427	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M951	JX860428	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.04.M952	JX860429	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.05.D215	JX860413	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.06.FTq	JX860414	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.11.SIVsmE660_FL10	JQ864084	All	Wu, F.	<i>J Virol</i> 86 (16); 8835-47 (2012)
SMM.US.86.CFU212	JX860407	All	Fischer, W.	<i>J Virol</i> 86 (24):13217-13231 (2012)
SMM.US.x.F236_H4	X14307	All	Hirsch, V.M.	<i>Nature</i> 339 (6223); 389-92 (1989)
SMM.US.x.H9	M80194	All	Courgnaud, V.	<i>J Virol</i> 66 (1):414-419 (1992)
SMM.US.x.PBJ14_15	L03295	All	Dewhurst, S.	<i>Nature</i> 345 (6276):636-640 (1990)
SMM.US.x.PBJA	M31325	All	Dewhurst, S.	<i>Nature</i> 345 (6276):636-640 (1990)
SMM.US.x.PBJ_143	M80193	All	Courgnaud, V.	<i>J Virol</i> 66 (1):414-419 (1992)
SMM.US.x.PBJ_6P6	L09212	All	Novembre, F.J.	<i>J Virol</i> 67 (5):2466-2474 (1993)
SMM.US.x.PGM53	AF077017	All	Novembre, F.J.	<i>J Virol</i> 72 (11):8841-8851 (1998)
SMM.US.x.SME543	U72748	All	Hirsch, V.	<i>J Virol</i> 71 (2):1608-1620 (1997)
SMM.x.x.pE660.CG7G	JX648292	All	Lopker	Unpublished
STM.US.89.STM_37_16	M83293	All	Novembre, F.J.	<i>Virology</i> 186 (2):783-787 (1992)

	Gag p15 start		p15 end_p27 start	
MAC.US.x.239	MGVNRNSVLSGKKADELEKIRLRLPNGKKYMLKHVVAAANELDRFLGAEISLLENKEGCKQILSVLAPLPTVGTSENLSKLYNTVCVWICWIAHAEKVKHTEEAQIVORHLVVETGTTETMPKTSRPTAPSSGRGGNYPVQQ	IGGNYVHLPLSPRTLNAWVKLIEEKKFGAE	169	
A.CI.88.UC2	-A-R-----G-R-I-----R-N-S-----T-D-----F-----L-----D-----KL-A-A-K-N-----P-K-F-----A-----V-----V-----		169	
A.DE.x.BEN	-A-R-----V-G-R-I-----K-----S-----R-D-----F-----L-----D-----KLA-A-A-K-N-----P-KR-----A-----V-----V-----		169	
A.DE.x.PE12 KR KRCC	-A-S-----V-G-R-I-----GK-----S-----IT-D-----F-----L-----D-----G-----KL-A-A-ADK-S-A-----P-----A-----S-----V-----V-----		170	
A.GH.x.GH1	-A-R-----V-G-R-I-----K-----S-----T-D-----F-----L-----D-----KL-A-A-A-K-S-----P-----R-F-----TG-----I-----V-----D-----		169	
A.GM.87.D104	-A-R-----V-G-R-I-----K-----S-----K-E-----F-----L-----D-----KLA-A-A-K-N-----P-----K-----F-----A-----I-----V-----V-----		169	
A.GM.x.ISY SBL_6669_85	-AK-R-----G-R-I-----T-----S-----I-----E-----F-----L-----D-----R-G-----E-A-K-NI-----P-----K-----F-----V-----V-----		169	
A.GM.x.MCN13	-A-K-----T-----G-R-I-----S-----R-T-G-----F-----L-----D-----G-----AA-A-K-N-----P-----K-----F-----V-----V-----		169	
A.GM.x.MCR35	-A-K-----T-----G-R-I-----S-----R-T-D-----F-----L-----D-----G-----AA-A-K-N-----P-----K-----F-----V-----V-----		169	
A.GW.86.FG clone NIHZ	-A-R-----V-G-R-I-----K-----S-----R-T-D-----F-----L-----D-----G-----AA-A-K-N-----P-----K-----F-----VA-----T-----I-----G-----		167	
A.GW.87.CAM2CG	-A-R-----V-G-R-I-----K-----S-----R-K-D-----F-----L-----D-----R-AL-AA-A-K-D-----P-----K-----S-----T-----V-----V-----		169	
A.GW.x.MDS	-A-S-----R-----G-R-I-----S-----R-K-D-----F-----F-----D-----R-FAR-AA-A-K-N-----P-----K-----S-----T-----V-----V-----		169	
A.IN.07.NNVA	-AK-R-----R-G-RV-----T-----S-----T-D-----F-----L-----D-----KL-A-A-K-N-----P-----EG-----F-----R-----T-----V-----V-----		169	
A.IN.95.CR1K 147	-AKS-----R-----G-R-----K-----T-----S-----T-D-----F-----L-----D-----K-----A-A-K-N-----P-----G-----F-----H-----T-----V-----V-----		169	
A.PT.x.ALI	-A-R-----R-----G-R-----I-----K-----T-----S-----R-K-E-----F-----V-----V-----D-----G-----I-----AA-TE-A-K-S-----P-----EQ-----F-----VA-----T-----V-----D-----		169	
A.SN.85.RDD	-A-R-----R-----G-R-----I-----K-----T-----S-----R-K-E-----F-----V-----V-----D-----G-----I-----R-----A-A-K-S-----E-----K-----H-----V-----T-----I-----		169	
B.CI.88.UC1	-A-S-----T-----V-G-R-C-----IT-V-----S-----H-----T-----S-----F-----Y-----L-----D-----K-A-AAD-----K-----A-----P-----G-----A-----M-----V-----		164	
B.CI.x.20_56	-A-G-----T-----V-G-R-----I-----V-----E-----Y-----R-----G-----S-----Q-----H-----T-----M-----F-----Y-----L-----D-----K-A-S-A-DK-----K-----A-----P-----G-----A-----V-----D-----		164	
B.CI.x.EHD	-A-G-----T-----V-G-R-----I-----V-----E-----R-----G-----S-----R-----R-----K-----G-----F-----L-----D-----K-A-AAD-----K-----AM-K-SK-T-----R-----L-----A-----A-----S-----		164	
B.GH.86.D205 ALT	-A-G-----T-----V-G-R-----I-----V-----Y-----S-----H-----T-----E-----F-----I-----F-----L-----D-----K-A-AAD-----K-----A-NK-----P-----G-----LA-----		164	
B.JP.01.KR020 IMCJ_KR020_1	-A-G-----T-----V-G-R-----I-----V-----Y-----S-----H-----T-----E-----F-----Y-----L-----V-----D-----D-----K-A-S-AAN-----K-----A-K-----P-----VA-----T-----		164	
G.CI.92.Abt96	-A-S-----T-----V-G-R-----I-----V-----S-----H-----T-----S-----L-----Q-----V-----KV-A-I-----P-----V-----V-----		169	
AB.CM.03.03CM_510_03	-A-S-----T-----V-G-R-----I-----V-----T-----S-----K-----F-----F-----L-----D-----K-A-A-DA-----K-----TA-NK-----P-----G-----A-----V-----V-----		163	
H2_01 AB.CI.90_7312A	-A-G-----T-----V-G-R-----I-----N-----S-----T-----M-----F-----L-----K-----D-----KLA-S-----D-----KT-TADK-A-T-----S-----VA-----V-----L-----		164	
H2_01 AB.JP.04.04JP_NMC307	-A-S-----T-----V-GAR-R-----I-----S-----X-----K-----I-----V-----F-----L-----Q-----D-----KLA-S-AAA-----K-----TADK-A-T-----G-----X-----VA-----V-----		164	
H2_01 AB.JP.07.07JP_NMC716	-A-S-----T-----V-GAR-R-----I-----T-----TA-----M-----V-----F-----L-----Q-----D-----KLA-S-AAA-----K-----TADK-A-T-----G-----VA-----V-----		164	
H2_01 AB.JP.08.08JP_NMC842	-A-G-----T-----V-G-RX-----I-----T-----TA-----M-----V-----F-----X-XL-----K-----D-----X-----KLA-S-AAV-----K-----TANK-A-T-----G-----X-----VA-----V-----X-----XX-----		164	
U.FR.96.12034	-A-#-----V-----V-----A-----L-----L-----A-----E-----A-----K-----A-----X-----P-----GR-----A-----V-----V-----		168	
MAC.US.x.17EC1			169	
MAC.US.x.17EFR			169	
MAC.US.x.1037			169	
MAC.US.x.2065			169	
MAC.US.x.251_1A11			169	
MAC.US.x.251_32H_PJ5			169	
MAC.US.x.251_BK28			169	
MAC.US.x.80935			169	
MAC.US.x.81035			169	
MAC.US.x.85013			169	
MAC.US.x.87082			169	
MAC.US.x.92050			169	
MAC.US.x.92077			169	
MAC.US.x.93057			169	
MAC.US.x.93062			169	
MAC.US.x.95058			169	
MAC.US.x.95086			169	
MAC.US.x.95112			169	
MAC.US.x.96016			169	
MAC.US.x.96020			169	
MAC.US.x.96072			169	
MAC.US.x.96081			169	
MAC.US.x.96093			169	
MAC.US.x.96114			169	
MAC.US.x.96123			169	
MAC.US.x.96135			169	
MAC.US.x.97009			169	
MAC.US.x.97074			169	
MAC.US.x.MM142_IVMXX			169	
MAC.US.x.SMM142_patent			169	
MAC.US.x.r80025			169	
MAC.US.x.r90131			169	
MNE.US.82.MNE_8			169	
MNE.US.x.MNE027			169	
SMM.CI.79.SIVsmCI2			169	
SMM.LR.89.SIVsmLIB1			168	
SMM.SL.92.SIVsmSL92A			169	
SMM.SL.92.SL92B			167	
SMM.US.04.G078			169	
SMM.US.04.G932			169	
SMM.US.04.M919			169	
SMM.US.04.M922			169	
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SMM.US.04.M926			169	
SMM.US.04.M934			168	
SMM.US.04.M935			169	
SMM.US.04.M940			169	
SMM.US.04.M946			169	
SMM.US.04.M947			169	
SMM.US.04.M949			169	
SMM.US.04.M950			169	
SMM.US.04.M951			169	
SMM.US.04.M952			169	
SMM.US.05.D215			169	
SMM.US.06.F1Q			169	
SMM.US.11.SIVsmE660_FL10			169	
SMM.US.86.CFU212			169	
SMM.US.x.F236_H4			169	
SMM.US.x.H9			169	
SMM.US.x.PB114_15			169	
SMM.US.x.PB1A			169	
SMM.US.x.PB1_143			169	
SMM.US.x.PB1_6P6			169	
SMM.US.x.PG053			169	
SMM.US.x.SNE043			169	
SMM.x.x.pE660.CG7G			169	
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Table of HIV sequence alignments with columns for strain identifiers (e.g., MAC_US_x.239), amino acid sequences, and accession numbers (335-397). Strains are grouped into categories like MAC, MNE, SMM, and STM.

	Pol p15 start	p15 end protease start	
MAC.US.x.239	FFRPWISMGKEAPQFPHGSSASGADANCSP.....	RGSPCSGAKELHAVGOAERKAERKOREALQG.....	GDRGFAAPQFSLWRRPVVTAHIEGQPEVVELDGTADDISVTGIELGPHYTPKIVGGIGGFINTKEYKNVEIV 134
A.CI.88.UC2	---DGLT---L-R-P-S---T-ST.....	SRSGS-PVR-IF---GE---GAEG-TI---GGRLTAPRAGRDTISQR.....	L-K---Y-D---A---DN---V---K---147
A.DE.x.BEN	---VGPT---S-L-RDP-P---T-STs.....	GRS-S-TVG-IY---RE---GAEG-TI---RGDGLAAPRAERDTSQR.....	L-K---Y-D---A---DN---V---K---147
A.DE.x.PE12 KR KRCCG	---D-P---S-L-RDP-PA---T-ST.....	SRP-SRP-R-VL---REE---AEN-TI---GDRGLTAPRTRDITQR.....	L-K---Y-V---A---SN-S---I---K---147
A.GH.x.GH1	---DG---L-R-P-S---T-ST.....	SRS-S-IGKTY---GER---GAEG-TI---RGDGLTAPRAGKTSQR.....	L-K---Y-V---A---Q---DN-V---I---K---147
A.GM.87.D184	---DGPT---A-L-R-P-S---T-ST.....	NRS-PVG-IY---RE---AEG-TI---GDGLTAPRAGRAPOR.....	L-T---K---F-D---A---DN---K---147
A.GM.x.ISY SBL_6669_85	---A-T---L-R-PKFA-NT-ST.....	N-S-PTG-V---RE-T-AETKITI-RSDRGLAASRARDDTTOR D-L	L-K---Y-D---A---SN-S---D---R---147
A.GM.x.MCN13	---DGPP---L-R-P-PA-NT-ST.....	SRS-S-PTG-IY---RK-TK-TE-TI-RSDRGLTAPRAGRTMOR D-L	L-LK---YV---A---SN-S---K---147
A.GM.x.MCR35	---DGPP---L-R-P-PA-NT-ST.....	SRS-S-PTG-IY---RK-TK-TE-TI-RSDRGLTAPRAGRTIQR D-L	L-LK---YV---A---SN-S---K---147
A.GW.86.FG c1one NIHZ	---D-PL---G-L-R-P-PA-NT-ST.....	I-S-S-PTG-IY---RK-KGAE-TV---SDRGLTAPRAGRTMOR D-L	L-K---R-N---A---SN-S---147
A.GW.87.CAM2CG	---D-PL---R-P-ST-NT-ST.....	T-S-S-TG-IY---RE---GAET-TI---RGDGLTAPRTRRGTMOG D-N	L-K---A---SN-S---147
A.GW.x.MDS	---D-PL---L-R-PGSA-NT-ST.....	SRS-S-PTG-IY---RE---GAE-TI---RGDGLAAPRAGKTMOR D-N	L-N---A---SN-S---147
A.IN.07.NNVA	---DGPP---L-R-PNPA-NT-ST.....	N-S-PIG-IY---RE---GAE-TI---GDRGPTAPRAGRSTLRG N-RL	L-K---Y---A---SD-N---147
A.IN.95.CRIK 147	---DKPP---S-L-R-P-ST-NT-STs.....	N-S-PTG-IY---RE---GAE-TI---GDRGPTAPRAGRSTLRG N-L	L-K---Y---A---SN-S---N---147
A.PT.x.ALI	---A-P---S-L-RNP-SA-INT-ST.....	SRA-S-P-GAVY---GE-K-AE-I-RGDGLTAPRAGRDTTOR	L-K---Y---A---SN-S---ED-K---147
A.SN.85.R0D	---TGPL---L-R-P-SA-T-ST.....	S-S-TG-IY---RE-T-AE-TI---SDRGLTAPRAGGDTIQGATN-L	L-K---Y---A---NN-S---148
B.CI.88.UC1	---VRTL---S-L-DP---S-TI-T-DGPSRGHDTSGDDTICAPCRS S-D-EK	---EDGET---EP-T---REA---EP-T---K-S---A---SN---D---148	
B.CI.x.20.56	---IRTL---S-L-P---EG-TI-T-DGPNTHGDTSGDICTPCRS S-D-EK	---REA---EP-T---K-S---A---SN---D---148	
B.CI.x.EHO	---VRPL---S-R-PGTP-DS-I-A-DEPSIRHDTSGDICTPCRS R-D	---TREE---GE-T---K-T-S---A---SN---N---147	
B.HG.86.D205 ALT	---VRTL---S-L-DP---S-TI-T-DEPSRGHDTSGDDTICAPCRS S-D-EK	---DGETT---EP-T---K-C-S---V---A---SN---D---148	
B.JP.01.KR020 IMCJ KR020_1	---I-PL---S-L-CSP-TP-DT-I-TTNEPSREHDTSGGNAICAPCRS S-DVEG	---RE---G-G-T---K-Y-S---A---SD---148	
G.CI.92.Abt96	---V-TL---S-L-DP-P-S-SISTT---D---SRPTE---XGEE-KGAEKQT	---XX---L---Y-S---A---SN-S---K---130	
AB.CM.03.03CM 510 03	---VRTL---S-L-DPG---S-TI-T-DEPSRXHDTSGDDTICAPCRS S-D-EK	---DGETT---EP-T---L---X-C---X---A---X-SN---X---D---148	
H2 01 AB.CI.90.7312A	---A-TL---S-L-P---DS-I-A-DEHSRGDTSGGDTICAPCRSGS D-EK	---TREA---EAG---L---Q-Y---A---SN---I---148	
H2 01 AB.JP.04.04JP NMC307	---A-TL---S-L-R-P---GG-I-A-DGHSREDDTSEGDTICAPCRS S-D-K	---TGEA---EA-T---L---Q-Y---AX---SN---X---DI---148	
H2 01 AB.JP.07.07JP NMC716	---V-TL---S-L-R-P---GG-I-A-DGNSREDDISEDDTICAPCRS S-D-K	---TGEAT---EA-T---L---Q-Y---A---CN---DI---148	
H2 01 AB.JP.08.08JP NMC842	---X-TL---S-L-R-P---GG-I-T-DGHSREDDISEDDTICAPCRS S-D-K	---TGEA---EA-T---G-L---Q---X---A---SN---DI---148	
U.FR.96.12034	---A-PL---K-S-L-P-PA-T-P-SPS---SRTSSGSADPSPSS S	---TGQETKGE---TI---G---K-I-Y-K-N---A-K-E-Y-T-E-E---K-FH-N-K---144	
MAC.US.x.17EC1	.....	.....	.....134
MAC.US.x.17EFR	.....	.....	.....134
MAC.US.x.1837	.....	.....	.....134
MAC.US.x.2065	.....	.....	.....134
MAC.US.x.251 1A11	.....	.....	.....134
MAC.US.x.251 32H PJ5	.....	.....	.....134
MAC.US.x.251 BK28	.....	.....	.....130
MAC.US.x.80035	.....	.....	.....134
MAC.US.x.81035	.....	.....	.....134
MAC.US.x.85013	.....	.....	.....134
MAC.US.x.87082	.....	.....	.....134
MAC.US.x.92050	.....	.....	.....134
MAC.US.x.92077	.....	.....	.....134
MAC.US.x.93057	.....	.....	.....134
MAC.US.x.93062	.....	.....	.....134
MAC.US.x.95058	.....	.....	.....134
MAC.US.x.95086	.....	.....	.....134
MAC.US.x.95112	.....	.....	.....134
MAC.US.x.96016	.....	.....	.....134
MAC.US.x.96020	.....	.....	.....134
MAC.US.x.96072	.....	.....	.....134
MAC.US.x.96081	.....	.....	.....134
MAC.US.x.96093	.....	.....	.....134
MAC.US.x.96114	.....	.....	.....134
MAC.US.x.96123	.....	.....	.....134
MAC.US.x.96135	.....	.....	.....134
MAC.US.x.97009	.....	.....	.....134
MAC.US.x.97074	.....	.....	.....134
MAC.US.x.MM142 IVMXX	.....	.....	.....130
MAC.US.x.SM142 patent	.....	.....	.....130
MAC.US.x.r80025	.....	.....	.....134
MAC.US.x.r90131	.....	.....	.....134
MNE.US.82.MNE 8	.....	.....	.....130
MNE.US.x.MNE027	.....	.....	.....130
SMM.-.pE660.C67G	.....	.....	.....130
SMM.CI.SIVsmCI2	.....	.....	.....139
SMM.LR.SIVsmL1B1	.....	.....	.....130
SMM.SL.SIVsmSL92B	.....	.....	.....126
SMM.SL.SIVsmSL92A	.....	.....	.....130
SMM.US.CFU212	.....	.....	.....130
SMM.US.D215	.....	.....	.....130
SMM.US.FTg	.....	.....	.....134
SMM.US.G078	.....	.....	.....130
SMM.US.G978	.....	.....	.....130
SMM.US.M919	.....	.....	.....130
SMM.US.M922	.....	.....	.....130
SMM.US.M923	.....	.....	.....130
SMM.US.M926	.....	.....	.....130
SMM.US.M934	.....	.....	.....130
SMM.US.M935	.....	.....	.....130
SMM.US.M940	.....	.....	.....130
SMM.US.M946	.....	.....	.....130
SMM.US.M947	.....	.....	.....130
SMM.US.M949	.....	.....	.....130
SMM.US.M950	.....	.....	.....130
SMM.US.M951	.....	.....	.....130
SMM.US.M952	.....	.....	.....130
SMM.US.SIVsmE660-FL10	.....	.....	.....130
SMM.US.x.F236 H4	.....	.....	.....130
SMM.US.x.H9	.....	.....	.....130
SMM.US.x.PBJ14 15	.....	.....	.....130
SMM.US.x.PBJA	.....	.....	.....130
SMM.US.x.PBJ 143	.....	.....	.....130
SMM.US.x.PBJ 6P6	.....	.....	.....130
SMM.US.x.PGMS3	.....	.....	.....130
SMM.US.x.SME543	.....	.....	.....130
STM.US.89.STM_37_16	.....	.....	.....130

	protease end	p51 RT start		D catalytic site	
MAC.US.x.239	LGKRIKGTIMTGDTPINIFGRNLLTALGMSLNFPZAKVEPKVVALKPKGDGPKLKQWPLSKKIVALEIC.EKMEKDGQLEEAPPTNPYNTPTFAIKKKDKNKWRMLIDFRELNRVTQDFTEVQLGPHPAGLAKKRITVLDIGDAYFSIPLDEEFQRYAFTLPSVN				303
A.CI.88.UC2	-N-VRA-----I-----L-V-RI-I-II-----R-----T-VE-K-----E-----I-----K-----V-----Y-D-P-----				316
A.DE.x.BEN	-N-VRA-----I-----L-V-I-I-T-----R-----T-E-K-----E-----I-----K-----SI-----V-----H-D-----A-----				316
A.DE.x.PE22_KR_KRCG	-N-KV-A-----I-----L-V-D-I-I-----VR-----T-E-E-K-----RE-----I-----K-----E-----I-----K-----V-----H-D-----T-----				316
A.GH.x.GH1	-N-VRA-----I-----L-V-I-I-T-----R-----T-E-E-K-----E-----I-----K-----V-----H-D-----				316
A.GM.87.D194	-N-VRA-----I-AT-----L-V-LD-I-T-----R-----T-E-E-K-----E-----I-----K-----V-----H-D-----				316
A.GM.x.ISY_SBL_6669_85	-N-KVRA-----I-----L-V-I-I-T-----OR-----TR-----E-E-K-----RE-----I-----K-----V-----Y-D-----				316
A.GM.x.MCN13	-KVRA-----I-----L-V-I-I-IM-----R-----T-E-E-K-----RE-----I-----K-----I-----K-----H-D-----I-----				316
A.GM.x.MCR35	-KVRA-----I-----L-V-I-I-IM-----R-----T-E-E-K-----RE-----I-----K-----I-----K-----H-D-----I-----				316
A.GW.86.FG_clone_NIHZ	-V-A-----V-----L-V-I-I-IM-----R-----T-E-E-K-----E-----I-----K-----I-----K-----V-----H-D-----				316
A.GW.87_GAM2CG	-V-A-----V-----L-V-I-I-IM-----R-----T-E-E-K-----E-----I-----R-----R-----I-----K-----V-----H-D-----				316
A.GW.x.MDS	-VRA-----I-----L-V-I-I-IM-----R-----T-E-E-K-----RE-----I-----K-----I-----K-----V-----H-D-----				316
A.IN.07.NNVA	-KVRA-----I-----L-V-I-I-K-----R-----T-E-E-K-----RE-----I-----R-----K-----E-----I-----K-----V-----H-D-----				316
A.IN.95.CR1K_147	-KVRA-----I-V-----L-V-I-I-IM-----R-----T-E-E-K-----RE-----I-----K-----E-----I-----K-----V-----H-D-----				316
A.PT.x.ALI	-N-V-A-----I-----L-V-I-IE-R-----R-----T-E-E-K-----T-RE-----I-----K-----V-----H-S-----				316
A.SN.85.ROD	-N-KVRA-----I-----L-V-I-I-IM-----R-----T-E-E-K-----E-----I-----K-----I-----K-----V-----H-D-P-----				317
B.CI.88.UC1	V-VRA-----I-NT-T-----V-I-K-----IR-----L-K-----E-----R-----K-----EKR-----V-----PN-----I-----				317
B.CI.x.20_56	V-VRA-V-----I-NS-T-----V-RI-Q-E-----IR-----L-K-----E-----S-----K-----E-----SK-----V-----V-----PD-----A-----				316
B.GH.86.D205_ALT	V-VRA-----I-NT-T-----V-E-----IR-----R-L-K-----E-----K-----E-----#-----#-----I-----V-----PN-----				314
B.JP.01.KR020_IMCJ_KR020_1	V-K-RA-----I-NT-T-----V-I-K-----IR-----L-K-----#K-----R-----E-----K-----#-----#-----E-----PD-----				317
G.CI.92.Abt96	V-QA-V-----I-VK-----R-M-----IR-----Q-----D-OE-----T-----EKR-----I-----V-----VD-----				299
AB.CM.03.03CM_510_03	V-TVRA-----I-NTX-T-----V-XX-EX-X-X-----IR-----RX-L-XK-----X-E-----X-----K-----X-----E-R-----I-----V-----PX-----X-T-----				317
H2_01_AB.CI.90.7312A	V-KVRS-----I-NT-T-----V-I-Q-----IR-----L-----E-----S-----K-----E-----EKR-----I-----V-----V-----PD-----				317
H2_01_AB.JP.04.04JP_NMC307	V-VRA-----IXSX-----M-L-X-Q-----IR-----L-----E-----VX-----X-----K-----X-----X-----E-R-----S-----V-----V-----PD-----X-----I-----				317
H2_01_AB.JP.07.07JP_NMC716	V-V-A-----I-S-----M-L-Q-----IR-----L-----E-----V-----VR-----K-----X-----E-R-----S-----V-----V-----PD-----				317
H2_01_AB.JP.08.08JP_NMC842	V-RA-----I-S-----M-L-X-----IRX-----L-----E-X-----VR-----K-----X-----E-R-----S-----V-----X-V-----PD-X-----I-----				317
U.FR.96.12034	-T-R-----E-----G-EAL-IGG-----R-----LE-K-----E-----S-----EK-----V-----C-D-----T-----				313
MAC.US.x.17EC1					303
MAC.US.x.17EFR					303
MAC.US.x.1937					303
MAC.US.x.2065					303
MAC.US.x.251_1A11	R-----L-----V-----				303
MAC.US.x.251_32H_PJ5					303
MAC.US.x.251_BK28					299
MAC.US.x.80835					303
MAC.US.x.81035					303
MAC.US.x.85013					303
MAC.US.x.87082					303
MAC.US.x.92050					303
MAC.US.x.92077					303
MAC.US.x.93057					303
MAC.US.x.93062					303
MAC.US.x.95058					303
MAC.US.x.95086					303
MAC.US.x.95112					303
MAC.US.x.96016					303
MAC.US.x.96020					303
MAC.US.x.96072					303
MAC.US.x.96081					303
MAC.US.x.96093					303
MAC.US.x.96114					303
MAC.US.x.96123					303
MAC.US.x.96135					303
MAC.US.x.97009					303
MAC.US.x.97074					303
MAC.US.x.MM142_IVMXX					299
MAC.US.x.SM142_patent					299
MAC.US.x.r80025					303
MAC.US.x.r90131					303
MNE.US.82.MNE_8					299
MNE.US.x.MNE027					299
SMM.-.pE660_CG7G					299
SMM.CI.SIVsmCI2					308
SMM.LR.SIVsmLI1B1					299
SMM.SL.SIVsmSL92A					295
SMM.US.CFU212					299
SMM.US.D215					299
SMM.US.FTg					303
SMM.US.G078					299
SMM.US.G978					299
SMM.US.M919					299
SMM.US.M922					299
SMM.US.M923					299
SMM.US.M926					299
SMM.US.M934					299
SMM.US.M935					299
SMM.US.M940					299
SMM.US.M946					299
SMM.US.M947					299
SMM.US.M949					299
SMM.US.M950					299
SMM.US.M951					299
SMM.US.M952					299
SMM.US.SIVsmE660-FL10					299
SMM.US.x.F236_H4					299
SMM.US.x.H9					299
SMM.US.x.PBJ14_15					299
SMM.US.x.PBJA					299
SMM.US.x.PBJ_143					299
SMM.US.x.PBJ_6P6					299
SMM.US.x.PGMS3					299
SMM.US.x.SMES43					299
STM.US.89.STM_37_16					299

DD catalytic site

MAC. US. x. 239	NAEPGKRYIYKLPQGWKSPAIFQYIMRHLVEPFKAMPVTLVQYMDLIIASDRDLEHDRVVLQSKELLNSIGFSTPEEKFKQDPPFQWMMGYELWPTKWLKQKIELPQRETFWTVDNIQKLVGLVNLWAAQIYPGIKTKHLRLIRGKMLTTEEVQWTEMAEAEEYEN	473
A. CI. 88. UC2	-V-----G-----I-----G-----K-----L-----GL-----D-----K-----I-----	486
A. DE. x. BEN	-M-----I-----I-----I-----G-----K-----L-----GL-----D-----C-----K-----D-----K-----I-----S-----	486
A. DE. x. PET2 KR KRCC	-----H-----O-----I-----I-----G-----T-----L-----GL-----D-----Y-----K-----C-----I-----O-----K-----V-----	486
A. GH. x. GH1	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GM. 07. D104	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GM. x. ISY SBL_6669_85	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GM. x. MCN13	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GM. x. MCR35	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GW. 86. FG c1one NIHZ	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GW. 87. CAM2CG	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. GW. x. MDS	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. IN. 07. NNVA	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. IN. 95. CR1K 147	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. PT. x. ALI	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	486
A. SN. 85. ROD	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	487
B. CI. 88. UC1	-----E-----V-----FM-----O-----I-----I-----G-----K-----L-----GL-----D-----L-----L-----O-----K-----I-----K-----	487
B. CI. x. 20_56	-SG-----L-----G-----K-----D-----D-----I-----V-----S-----S-----L-----DM-----D-----K-----K-----R-----O-----EK-----V-----LF-----R-----I-----K-----L-----LO-----	487
B. CI. x. EHO	-----L-----G-----K-----D-----D-----I-----V-----S-----S-----L-----DM-----D-----K-----K-----R-----O-----EK-----V-----LF-----R-----I-----K-----L-----LO-----	486
B. GH. 86. D205 ALT	-----L-----G-----K-----D-----D-----I-----V-----S-----S-----L-----DM-----D-----K-----K-----R-----O-----EK-----V-----LF-----R-----I-----K-----L-----LO-----	484
B. JP. 01. KR020 IMCJ KR020_1	-----L-----G-----K-----D-----D-----I-----V-----S-----S-----L-----DM-----D-----K-----K-----R-----O-----EK-----V-----LF-----R-----I-----K-----L-----LO-----	487
G. CI. 92. Abt96	-----L-----G-----K-----D-----D-----I-----V-----S-----S-----L-----DM-----D-----K-----K-----R-----O-----EK-----V-----LF-----R-----I-----K-----L-----LO-----	469
AB. CM. 03. 03CM 510 03	XT-----X-----X-----X-----S-----K-----D-----S-----II-----V-----S-----S-----L-----MM-----D-----X-----XX-----R-----X-----X-----K-----O-----EK-----V-----LF-----X-----R-----M-----X-----X-----L-----LO-----X-----	487
H2_01 AB. CI. 90. 7312A	-----X-----S-----K-----D-----R-----N-----II-----V-----S-----S-----L-----DM-----D-----K-----K-----O-----I-----E-----V-----LF-----R-----I-----K-----L-----MO-----	487
H2_01 AB. JP. 04. 04JP NMC307	-----X-----S-----K-----D-----N-----II-----V-----S-----S-----L-----DM-----D-----K-----K-----O-----I-----E-----V-----LF-----I-----I-----L-----MO-----	487
H2_01 AB. JP. 07. 07JP NMC716	-----X-----S-----K-----D-----N-----II-----V-----S-----S-----L-----DM-----D-----K-----K-----O-----I-----E-----V-----LF-----I-----I-----L-----MO-----	487
H2_01 AB. JP. 08. 08JP NMC842	-----X-----S-----K-----D-----N-----II-----XX-----S-----S-----X-----DM-----D-----X-----X-----K-----O-----I-----EX-----V-----LF-----I-----X-----L-----XMQ-----X-----	487
U. FR. 96. 12034	-----T-----NL-----E-----AVII-----N-----QL-----S-----L-----KT-----D-----HK-----K-----E-----DV-----V-----K-----K-----FA-----	483
MAC. US. x. 17EC1	-----L-----	473
MAC. US. x. 17EFR	-----L-----	473
MAC. US. x. 1737	-----L-----	473
MAC. US. x. 2065	-----L-----	473
MAC. US. x. 251_1A11	-----N-----L-----X-----	473
MAC. US. x. 251_32H_PJ5	-----L-----	473
MAC. US. x. 251_BK28	-----L-----	469
MAC. US. x. 80835	-----L-----	473
MAC. US. x. 81035	-----L-----	473
MAC. US. x. 85013	-----L-----	473
MAC. US. x. 87082	-----L-----	473
MAC. US. x. 92050	-----L-----	473
MAC. US. x. 92077	-----L-----	473
MAC. US. x. 93057	-----L-----	473
MAC. US. x. 93062	-----L-----	473
MAC. US. x. 95058	-----L-----	473
MAC. US. x. 95086	-----L-----	473
MAC. US. x. 95112	-----L-----	473
MAC. US. x. 96016	-----L-----	473
MAC. US. x. 96020	-----L-----	473
MAC. US. x. 96072	-----L-----	473
MAC. US. x. 96081	-----L-----	473
MAC. US. x. 96093	-----L-----	473
MAC. US. x. 96114	-----L-----	473
MAC. US. x. 96123	-----L-----	473
MAC. US. x. 96135	-----L-----	473
MAC. US. x. 97009	-----L-----	473
MAC. US. x. 97074	-----L-----	473
MAC. US. x. MM142 IVMXX	-----XX-----L-----S-----	469
MAC. US. x. SM142_patent	-----L-----S-----	469
MAC. US. x. r80025	-----L-----	473
MAC. US. x. r90131	-----X-----X-----	473
MNE. US. 82. MNE 8	-----H-----N-----V-----L-----	469
MNE. US. x. MNE027	-----H-----N-----V-----L-----K-----	469
SMM. -_pE660_CG7G	-----D-----N-----I-----E-----A-----II-----I-----N-----QL-----A-----L-----G-----DD-----HK-----K-----K-----K-----E-----DR-----V-----L-----K-----K-----L-----LA-----	469
SMM. CI. SIVsmCI2	-----V-----F-----K-----T-----I-----I-----L-----G-----N-----GLT-----K-----M-----T-----LRDM-----NL-----D-----N-----L-----L-----Y-----K-----*-----K-----R-----R-----N-----K-----K-----S-----	468
SMM. LR. SIVsmL1B1	-----S-----O-----H-----O-----S-----L-----L-----G-----N-----GLT-----K-----M-----T-----LRDM-----DL-----D-----N-----L-----L-----Y-----K-----*-----T-----EK-----V-----N-----K-----V-----L-----LA-----	469
SMM. SL. SIVsmSL92A	-----S-----O-----H-----O-----S-----L-----L-----G-----N-----GLT-----K-----M-----T-----LRDM-----DL-----D-----N-----L-----L-----Y-----K-----*-----T-----EK-----V-----N-----K-----V-----L-----LA-----	469
SMM. US. CFU212	-----H-----G-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. D215	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. FTg	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	473
SMM. US. G078	-----V-----H-----N-----D-----H-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. G932	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M919	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M922	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M923	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M926	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M934	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M935	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M940	-----V-----H-----O-----D-----H-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M946	-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M947	-----L-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M949	-----L-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M950	-----L-----H-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M951	-----V-----H-----O-----D-----H-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. M952	-----V-----H-----O-----D-----H-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. SIVsmE660-FL10	-----N-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. F236_H4	-----N-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. H9	-----N-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. PB114_15	-----X-----H-----X-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. PB3A	-----X-----H-----X-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. PB3_143	-----X-----H-----X-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. PB3_6P6	-----X-----H-----X-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. PGMS3	-----H-----N-----G-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
SMM. US. x. SMES43	-----N-----N-----I-----I-----K-----L-----GL-----D-----Y-----K-----D-----K-----N-----V-----K-----VS-----L-----	469
STM. US. 89. STM_37_16	-----NI-----R-----I-----L-----L-----NL-----D-----DV-----K-----A-----A-----	469

MAC.US.x.239
A.CI.88.UC2
A.DE.x.BEN
A.DE.x.PET2 KR KRCC
A.GH.x.GH1
A.GM.87.D104
A.GM.x.LSY SBL_6669_85
A.GM.x.MCN13
A.GM.x.MCR35
A.GW.86.FG clone NIHZ
A.GW.87.CAM2CG
A.GW.x.MDS
A.IN.07.NNVA
A.IN.95.CR1K 147
A.PT.x.ALI
A.SN.85.ROD
B.CI.88.UC1
B.CI.x.20_56
B.CI.x.EHD
B.GH.86.D205 ALT
B.JP.01.KR020 IMCJ_KR020_1
G.CI.92.Abt96
ABM.CM.03.03CM 510 03
H2 01 AB.CI.90.7312A
H2 01 AB.JP.04.04JP NMC307
H2 01 AB.JP.07.07JP NMC716
H2 01 AB.JP.08.08JP NMC842
U.FR.96.12034
MAC.US.x.17EC1
MAC.US.x.17EFR
MAC.US.x.1937
MAC.US.x.2065
MAC.US.x.251 1A11
MAC.US.x.251 32H PJ5
MAC.US.x.251 BK28
MAC.US.x.80035
MAC.US.x.81035
MAC.US.x.85013
MAC.US.x.87082
MAC.US.x.92050
MAC.US.x.92077
MAC.US.x.93057
MAC.US.x.93062
MAC.US.x.95058
MAC.US.x.95086
MAC.US.x.95112
MAC.US.x.96016
MAC.US.x.96020
MAC.US.x.96072
MAC.US.x.96081
MAC.US.x.96093
MAC.US.x.96114
MAC.US.x.96123
MAC.US.x.96135
MAC.US.x.97009
MAC.US.x.97074
MAC.US.x.MM142 IVMXX
MAC.US.x.SM1142 patent
MAC.US.x.r80025
MAC.US.x.r90131
MNE.US.82.MNE 8
MNE.US.x.MNE027
SMM.-.pE660.CG7G
SMM.CI.SIVsmCI2
SMM.LR.SIVsmL1B1
SMM.SL.SIVsmSL92A
SMM.US.CFU212
SMM.US.D215
SMM.US.FTg
SMM.US.G078
SMM.US.G932
SMM.US.M919
SMM.US.M922
SMM.US.M923
SMM.US.M926
SMM.US.M934
SMM.US.M935
SMM.US.M940
SMM.US.M946
SMM.US.M947
SMM.US.M949
SMM.US.M950
SMM.US.M951
SMM.US.M952
SMM.US.SIVsmE660-FL10
SMM.US.x.F236_H4
SMM.US.x.H9
SMM.US.x.PBJ14_15
SMM.US.x.PBJA
SMM.US.x.PBJ 143
SMM.US.x.PBJ 16P6
SMM.US.x.PGMS3
SMM.US.x.SMES43
STM.US.89.STM_37_16

Table with columns for sequence identifiers, amino acid positions (1-20), and protein variants. The table lists various HIV-1 and HIV-2 sequences such as MAC.US.x.239, SMM.-.pE660.CG7G, and STM.US.89.STM_37_16, showing their corresponding amino acid sequences and specific mutations or variants.

	p31 Integrase end Pol end	
MAC.US.x.239	DIKVVPRKAKIKDYGGKVEDSSHMEDT.GEAREVA.....*	1019
A.CI.88.UC2	-----R---RQ-L--P-L-GA.R-DG---	1033
A.DE.x.BEN	-----R---RQ-L--P-L-GA.R-DG-M.CPCQVPEIQ	1041
A.DE.x.PE12_KR_KRCG	---I---R---RR-----L-G-.R-DG---	1033
A.GH.x.GH1	---I---R---RQ-L##-L-GARE-DG---	1032
A.GW.87.D194	-----R---RQ-L--L-GA.R-DG---	1033
A.GM.x.ISY_SBL_6669_85	---I---R---PRO-M-G-L-GA.R-DG-M---	1033
A.GM.x.MCN13	-----RQ-L-G-L-GA.R-DG-M---	1033
A.GM.x.MCR35	-----RQ-L-G-L-GA.R-DG-M---	1033
A.GW.86.FG_clone_NIHZ	E-----RQ-M-G-L-GA.R-DG-M---	1032
A.GW.87_CAM2CG	---II---R---RQ-L--L-GA.R-NG---	1032
A.GW.x.MDS	---I---R---RQDM-GP-L-G-.R-DG---	1033
A.IN.07.NNVA	---II---RQ-M-GP-L-G-.R-DG---	1033
A.IN.95.CR1K_147	---II---R---RQ-M-GP-L-G-.R-DG---	1033
A.PT.x.ALI	-----R---RQ-L-GP-L-GA.R-DG---	1033
A.SN.85.R0D	---II---R---RQ-M-G-L-GA.R-DG-M---	1034
B.CI.88.UC1	E---I---RH-----L-CGTD---RQ---M-0SGQVPEA-	1042
B.CI.x.20_56	E---I---RH-----L-CGADV---RQ---M-0SGQVPEA-	1042
B.CI.x.EHO	E---I---RN-----L-C-ADV---MQ---0SN*IPET-	1040
B.GH.86.D205_ALT	E---I---RH-----GL-C-AD---RQ---M-0SD*VS*V-	1037
B.JP.01.KR020_IMCJ_KR020_1	E---I---N-----L-C-AN---Q---M-0PSQISET-	1042
G.CI.92.Abt96	E-----TN---RQTG---	1016
AB.CM.03.03CM_510_03	E-----RH---GL-C-AD---RQ-S-M-0SDQIP*V-	1041
H2_01_AB.CI.90.7312A	E---I---RH---L-C-TDV---RQ---M-0SSQVSEA-	1042
H2_01_AB.JP.04.04JP_NMC307	E-----RH---L-CGTDV---RQ---M-0SGQVPEA-	1042
H2_01_AB.JP.07.07JP_NMC716	E-----RH---L-CGADV---RQ---M-0SGQVPEV-	1042
H2_01_AB.JP.08.08JP_NMC842	E-----RH---GL-CGTD---RQ---M-0SXQVPEA-	1042
U.FR.96.12034	---I---R-----L---NL-GA.EKV--M-LPDQTP#V-	1036
MAC.US.x.17EC1	-----	1020
MAC.US.x.17EFR	-----	1020
MAC.US.x.1937	-----	1020
MAC.US.x.2065	-----	1020
MAC.US.x.251_1A11	-----M-----	1020
MAC.US.x.251_32H_PJ5	-----	1020
MAC.US.x.251_BK28	-----	1016
MAC.US.x.80035	-----	1020
MAC.US.x.81035	-----	1020
MAC.US.x.85013	-----	1020
MAC.US.x.87082	-----	1020
MAC.US.x.92050	-----	1020
MAC.US.x.92077	-----	1020
MAC.US.x.93057	-----	1020
MAC.US.x.93062	-----	1020
MAC.US.x.95058	-----	1020
MAC.US.x.95086	-----	1020
MAC.US.x.95112	-----	1020
MAC.US.x.96016	-----	1020
MAC.US.x.96020	-----	1020
MAC.US.x.96072	-----	1020
MAC.US.x.96081	-----X-----	1020
MAC.US.x.96093	-----	1020
MAC.US.x.96114	-----	1020
MAC.US.x.96123	-----	1020
MAC.US.x.96135	-----	1020
MAC.US.x.97009	-----	1020
MAC.US.x.97074	-----	1020
MAC.US.x.HM142_IVMXX	-----M-----	1016
MAC.US.x.SM142_patent	-----M-----	1016
MAC.US.x.r80025	-----	1020
MAC.US.x.r90131	-----	1020
MNE.US.82.MNE_8	-----	1016
MNE.US.x.MNE027	-----	1016
SMM.-.pE660_CG7G	E-----L-G-L---	1016
SMM.CI.SIVsmCI2	---I---LGN-PYL-NP.E-DGKM-OPD---	1028
SMM.LR.SIVsmL1B1	-----G-L---R-T-M---	1010
SMM.SL.92.S192B	E-----RQ-MG-AS---Q*KS GAL---	1012
SMM.SL.SIVsmSL92A	---I---M--AD-N-.TOV-T-QLSEISKV---	1023
SMM.US.CFU212	-----G-L-.R-G-M---	1016
SMM.US.D215	---V-V-A---L---R-TG---	1016
SMM.US.FTg	-----A-L-GT-V---R-G-M---	1020
SMM.US.G078	E-----A-G-G-L-P---V-M---	1016
SMM.US.G932	-----A-G-P-L-P---V-M---	1016
SMM.US.M919	-----L-G-L---K---	1016
SMM.US.M922	-----L-G-L---T---	1016
SMM.US.M923	---V---L-G-L---	1016
SMM.US.M926	-----R---M-GP---	1016
SMM.US.M934	---V---V-GP-V-P---	1016
SMM.US.M935	E-----L-G-L---	1016
SMM.US.M940	-----A-G-G-L-P---M---	1016
SMM.US.M946	---V---G-P-V-P---	1016
SMM.US.M947	-----G-L---	1016
SMM.US.M949	-----A-GMGP-L-P---M---	1016
SMM.US.M950	-----G-P-V-P---	1016
SMM.US.M951	-----A-G-G-L-P---M---	1016
SMM.US.M952	-----M-GP-V-S---	1016
SMM.US.SIVsmE660-FL10	-----L-G-L---	1016
SMM.US.x.F236_H4	-----L-G-L---	1015
SMM.US.x.H9	-----L-G-L---	1016
SMM.US.x.PBJ14_15	-----L-G-L---	1016
SMM.US.x.PBJA	-----L-G-L---	1016
SMM.US.x.PBJ_143	-----L-G-L---	1016
SMM.US.x.PBJ_6P6	-----L-G-L---	1016
SMM.US.x.PGMS3	-----L-GP---	1016
SMM.US.x.SME543	-----L-G-L---	1016
STM.US.89.STM_37_16	-----G-L---R-G---	1016

MAC.US.x.239
A.CI.88.UC2
A.DE.x.BEN
A.DE.x.PE22 KR KRCC
A.GH.x.GH1
A.GM.87.D104
A.GM.x.ISY_SBL_6669_85
A.GM.x.MC13
A.GM.x.MCR35
A.GW.86.FG clone NIHZ
A.GW.87.FAM2CG
A.GW.x.MDS
A.IN.07.NNVA
A.IN.95.CR1K 147
A.PT.x.ALI
A.SN.85.R0D
B.CI.88.UC1
B.CI.x.20_56
B.CI.x.EHD
B.GH.86.D205 ALT
B.JP.01.KR020 IMCJ KR020_1
G.CI.92.Abt96
AB.CM.03.03CM 510 03
H2 01 AB.CI.90.7312A
H2 01 AB.JP.04.04JP NMC307
H2 01 AB.JP.07.07JP NMC716
H2 01 AB.JP.08.08JP NMC842
U.FR.96.12034
MAC.US.x.17EC1
MAC.US.x.17EFR
MAC.US.x.1737
MAC.US.x.2065
MAC.US.x.251_1A11
MAC.US.x.251_32H_PJ5
MAC.US.x.251_BK28
MAC.US.x.80835
MAC.US.x.81035
MAC.US.x.85013
MAC.US.x.87082
MAC.US.x.92050
MAC.US.x.92077
MAC.US.x.93057
MAC.US.x.93062
MAC.US.x.95058
MAC.US.x.95086
MAC.US.x.95112
MAC.US.x.96016
MAC.US.x.96020
MAC.US.x.96072
MAC.US.x.96081
MAC.US.x.96093
MAC.US.x.96114
MAC.US.x.96123
MAC.US.x.96135
MAC.US.x.97009
MAC.US.x.97074
MAC.US.x.MM142 IVMXX
MAC.US.x.SM142 patent
MAC.US.x.r80025
MAC.US.x.r90131
MNE.US.82.MNE 8
MNE.US.x.MNE027
SMM.CI.79.SIVsmCI2
SMM.LR.89.SIVsmLIB1
SMM.SL.92.SIVsmSL92A
SMM.SL.92.SI92B
SMM.US.04.G078
SMM.US.04.G932
SMM.US.04.M919
SMM.US.04.M922
SMM.US.04.M923
SMM.US.04.M926
SMM.US.04.M934
SMM.US.04.M935
SMM.US.04.M940
SMM.US.04.M946
SMM.US.04.M947
SMM.US.04.M949
SMM.US.04.M950
SMM.US.04.M951
SMM.US.04.M952
SMM.US.05.D215
SMM.US.06.F1Q
SMM.US.11.SIVsmE660_FL10
SMM.US.86.CFU212
SMM.US.x.F236 H4
SMM.US.x.H9
SMM.US.x.PB114 15
SMM.US.x.PBJA
SMM.US.x.PBJ 143
SMM.US.x.PBJ 6P6
SMM.US.x.PG053
SMM.US.x.SM53
SMM.x.x.pE660.CG7G
STM.US.89.STM_37_16

Table with columns for protein names and amino acid sequences. Includes 'Vif start' label and various sequence entries corresponding to the identifiers on the left.

	Vpx start	Vpx end
MAC.US.x.239	MSPDRERIPGNSGEETIGEAFEWLNRTVEEINREAVNHLPRELIFQVWORSWEYWHDEQGMSPSYVKYRYLCLIQKALFMHCKKGCRCLEGEHGAGGW.RP.GPPPPPPGLA*	
A.CI.88.UC2	-T-V-----D-I-AL-----R-----L-S-T-----M-M-I-L-T-G--P-----V-	112
A.DE.x.BEN	-T-V-----E-I-AL-----R-----A-T-----M-I-T-F-R-T-W-DM-RE-LEDO.	113
A.DE.x.PE12 KR KRCC	-A-KTV-G-V-----A-E-M-A-----R-DL-Q-T-----R-M-Y-M-I-V-T-G-P-----V-	114
A.GH.x.GH1	-T-V-----D-I-AL-----R-----D-----M-V-I-F-R-T-G-P-----S-----V-	115
A.GM.87.D194	-A-V-----D-I-AL-----R-----T-----M-V-I-F-R-T-R-P-----V-	116
A.GM.x.ISY SBL_6669_85	-TN-T-----E-D-D-A-----R-----R-T-----M-V-F-T-R-P-----S-----V-	117
A.GM.x.MCN13	-T-TV-----E-N-D-A-----R-----O-T-----M-T-R-T-G-P-----V-	118
A.GM.x.MCR35	-T-TV-----E-N-D-I-A-----R-----O-T-----M-T-R-T-G-P-----V-	119
A.GW.86.FG c1one NIHZ	-T-TV-----E-A-D-A-----H-----R-----T-T-----M-MY-A-RDGT-G#-PE-S#	120
A.GW.87.CAM2CG	-T-TV-----E-A-D-A-----R-----O-T-----M-V-F-R-T-G-P-----V-	121
A.GW.x.MDS	-A-TV-----EQ-A-D-A-----R-----T-----M-MYI-GR-T-R-P-----V-	122
A.IN.07.NNVA	-T-TV-----A-E-A-----G-A-T-----M-M-I-ARR-T-G-G-S-L-WV	123
A.IN.95.CRIK 147	-T-TV-----A-D-A-----G-A-T-----M-I-VRR-T-G-P-----S-----V-	124
A.PT.x.ALI	-AN-TV-----D-A-----R-----O-T-----M-MYT-FM-T-G-P-----S-----V-	125
A.SN.85.R0D	-T-TV-----A-----R-----E-T-----I-VY-VR-T-R-P-----V-	126
B.CI.88.UC1	-V-D-----D-E-IT-L-V-----C-A-RE-S-T-----L-M-M-V-YT-Q-P-----S-----V-	127
B.CI.x.20.56	-V-D-----V-A-E-LA-L-K-----K-A-R-----I-T-----L-M-NYI-IA-T-RR-P-----Q-----V-	128
B.CI.x.EHO	-V-D-----V-A-E-L-H-L-V-----K-A-RE-I-T-----M-M-I-FA-G-R-P-----V-	129
B.GH.86.D205 ALT	-V-D-----V-A-E-IT-L-V-----A-RE-I-T-----L-M-M-V-YT-Q-P-----S-----V-	130
B.JP.01.KR020 IMCJ_KR020_1	-X-E-D-----E-XT-I-----R-----A-T-----L-M-M-V-T-QK-P-----Q-----V-	131
G.CI.92.Abt96	-V-D-----X-E-IT-L-V-----C-A-R-----S-T-----L-M-M-V-YT-T-RQ-X-----S-----V-	132
AB.CM.03.03CM_510_03	-V-D-----V-A-E-IV-L-----A-R-D-----I-T-----L-M-M-V-FA-T-RG-P-----R-----V-	133
H2_01_AB.CI.90.7312A	-V-D-----D-E-IT-L-V-----A-RE-S-XT-----L-M-M-V-FS-T-RR-P-----Q-----V-	134
H2_01_AB.JP.04.04JP_NMC307	-V-D-----D-E-IT-L-V-----A-RE-S-XT-----L-M-M-V-FS-T-RR-P-----Q-----V-	135
H2_01_AB.JP.07.07JP_NMC716	-X-X-XV-D-----E-N-E-IT-L-V-----A-RE-S-T-----L-M-M-V-FS-T-RR-P-----Q-----V-	136
H2_01_AB.JP.08.08JP_NMC842	-X-X-XV-D-----X-E-IT-L-V-----A-RE-T-A-----L-M-M-V-FS-T-RR-P-----Q-----V-	137
U.FR.96.12034	-G-----E-V-S-E-RD-A-Q-----Q-R-E-T-----Q-P-----S-----I-----V-	138
MAC.US.x.17EC1		139
MAC.US.x.17EFR		140
MAC.US.x.1937		141
MAC.US.x.2065		142
MAC.US.x.251_1A11		143
MAC.US.x.251_32H_PJ5		144
MAC.US.x.251_BK28		145
MAC.US.x.80835		146
MAC.US.x.81035		147
MAC.US.x.85013		148
MAC.US.x.87082		149
MAC.US.x.92050		150
MAC.US.x.92077		151
MAC.US.x.93057		152
MAC.US.x.93062		153
MAC.US.x.95058		154
MAC.US.x.95086		155
MAC.US.x.95112		156
MAC.US.x.96016		157
MAC.US.x.96020		158
MAC.US.x.96072		159
MAC.US.x.96081		160
MAC.US.x.96093		161
MAC.US.x.96114		162
MAC.US.x.96123		163
MAC.US.x.96135		164
MAC.US.x.97009		165
MAC.US.x.97074		166
MAC.US.x.MM142_IVMXX		167
MAC.US.x.SMM142_patent		168
MAC.US.x.r80025		169
MAC.US.x.r90131		170
MNE.US.82.MNE_8		171
MNE.US.x.MNE027		172
SMM.CI.79.SIVsmCI2	-GSA-T-----YS-AV-G-K-----R-F-----QA-TQ-L-----C-V-T-R-S-A	173
SMM.LR.89.SIVsmLIB1	-E-V-T-----R-F-----A-T-----M-L-----G-S-S-----F	174
SMM.SL.92.SIVsmSL92A	-Q-D-----D-E-V-T-----R-R-----AA-T-----VQ-M-M-Q-FR-T-R-SQ-T	175
SMM.SL.92.S192B	-T-----H-A-AL-QT-Q-----R-C-V-Y-A-----VQ-M-M-Q-FR-T-R-SQ-T	176
SMM.US.04.G078	-H-A-----R-Y-R-E-T-----W-M-R-----EI	177
SMM.US.04.G932	-D-----D-----S-----M-----EI	178
SMM.US.04.M919	-L-D-D-----A-----R-KT-V-T-----M-R-E-E-S	179
SMM.US.04.M922	-L-D-D-----A-----R-M-E-T-----M-R-E-E-S	180
SMM.US.04.M923	-L-D-D-----A-----R-I-V-T-----M-R-E-E-S	181
SMM.US.04.M926	-A-D-T-----R-V-----R-YE-Q-Q-----M-R-E-S	182
SMM.US.04.M934	-A-D-T-----R-V-----R-YE-Q-Q-----M-R-E-S	183
SMM.US.04.M935	-V-D-D-----A-----R-M-E-T-----M-R-E-S	184
SMM.US.04.M940	-V-D-D-----A-----R-M-E-T-----M-R-E-S	185
SMM.US.04.M946	-V-D-D-----A-----R-YE-VA-T-----W-M-R-----R	186
SMM.US.04.M947	-V-D-E-----D-A-----R-YE-I-V-T-----M-R-E-S	187
SMM.US.04.M949	-V-D-E-----M-----R-I-E-T-----W-R-E-S	188
SMM.US.04.M950	-V-D-E-----D-----R-YE-Q-Q-----M-R-E-S	189
SMM.US.04.M951	-V-D-E-----H-D-----R-YE-R-E-T-----W-M-R-----S	190
SMM.US.04.M952	-V-D-E-----H-D-----R-YE-R-E-T-----W-M-R-----S	191
SMM.US.05.D215	-N-----E-D-V-----R-YE-Q-E-----I-----D	192
SMM.US.06.F1Q	-E-----E-D-A-----R-R-A-T-----V-R-D-T	193
SMM.US.11.SIVsmE660_FL10	-A-----E-G-A-----R-M-E-T-----M-M-R-N-R-E-Q	194
SMM.US.86.CFU212	-A-----L-V-----R-C-F-----M-E-T-----M-M-R-N-R-E-Q	195
SMM.US.x.F236_H4	-K-----V-----R-C-F-----M-E-T-----M-M-R-N-R-E-Q	196
SMM.US.x.H9	-XX-X-----XX-X-D-H-X-----X-----R-X-----M-V-T-X-----M-----GE	197
SMM.US.x.PB114_15	-D-D-----D-A-----R-Y-M-V-T-----M-----GE	198
SMM.US.x.PBJA	-D-D-----D-A-----R-M-V-T-----M-----GE	199
SMM.US.x.PBJ_143	-XX-X-----XX-X-D-H-X-----A-X-----R-X-----M-V-T-X-----M-----GE	200
SMM.US.x.PBJ_6P6	-D-D-----D-A-----R-M-V-T-----M-----GE	201
SMM.US.x.PGMS3	-D-D-----D-A-----R-R-M-E-T-----V-R-E-S	202
SMM.US.x.SNE43	-E-----G-A-----R-M-E-T-----V-E-T	203
SMM.x.x.pE660.CG7G	-E-----G-A-----R-M-E-T-----V-E-T	204
STM.US.89.STM_37_16	-A-E-----H-D-----R-----PG-----S-R-----T	205

	Vpr start	Vpr end
MAC.US.x.239	MEER...PPENEGPQREPWDEWVEVLEELKEEAALKHFDPRLLTALGNHIYNRHGDTLEGAGELIRILQRALFMHFRGGCIHSRIGOPGGGNPLSAITPPSRSM*	
A.CI.88.UC2	.....M...#LGD-DC-#...I...*R...I-D-Y...N...R-K...S-L-V-GSR...*TRRRRT-CP-T-TP-G-H	
A.DE.x.BEN	-T-APTEF-DGT-R-DLGS-D-I-T-R-I...R...I...Y-Y-H...R-KT...V-A-NR...*TRRRRT-CP-A-TP-A-H	
A.DE.x.PE22_KR_KRCG	-T-APAEF-D-T-P-G-G-IGI-R-R...R...T-Y-CA...S-R-NV...V-A-KI...TR-ET-F...TP-G-Q	
A.GH.x.GH1	-T-APTEF-DGT-R-LGG-D-IRI-G-I...I...Y-HS...P-R...V-L-A-NR...S-TRRRRT-FP-A-TP-G-Y	
A.GM.97.D194	-T-APTEF-DGT-R-LGST-I-T-K-I...C-I...Y...R...V...V-L-A-DR...TRRA-CP-A-TP-G-H	
A.GM.x.ISY_SBL_6669_85	-T-APAEF-DGT-P-G...I-R-I...R...Y-Y-T...R-V...T-A-G...R...R...TP-N-Q	
A.GM.x.MCN13	-T-APTEF-DGT-P-G-II-I-RKI-K...Y-HT...R-NV...A-RL...T-RT-FP-TSTP-T-Q	
A.GM.x.MCR35	-T-APTEF-DGT-P-G-II-I-RKI-K...Y-HT...R-NV...A-RL...T-RT-FP-TSTP-T-Q	
A.GW.86.FG_clone_NIHZ	-T-APTEL-DRT-P-G-A-I-I-R-IE...R...RY-T...R...A-A-G...TR...TP-G-H	
A.GW.87_CAM2CG	-T-APTEL-DGT-P-G-I-I-RDI...R...G-A...R-R-V...T-A-N...TR...TP-R*	
A.GW.x.MDS	-T-APTEL-DGT-P-G-I-I-R-IT...RS...R-T...R...V...T-A-N...TR...TP-Q	
A.IN.07.NNVA	-T-APTEL-DRT-P-G-I-I-R-I...R...RY-T-Y-P...R-V...T-A-G...R...TP-R	
A.IN.95.CR1K_147	-T-APTEL-DGT-P-G-I-I-R-I...R...IY-D-Y...R-NV...T-A-G...R...TP-R	
A.PT.x.ALI	-T-APTEF-AGM-HQGAR...I-R-I...R...M-I...Y-T...R-R...V...TR-R...TP-N-Q	
A.SN.85.R0D	-A-APTEL-VDTG-L-G-II-I-R-I...R...I-KY-T...R-KV...T-A-G...V...TR...TP-N-Q	
B.CI.88.UC1	-A-APET...S...E-ED-M-I-Q...R...F-S...A-K...L-A-Q...-R	
B.CI.x.20_56	-A-APET...D...E-ED-I-Q...R...F-S...A-K...L-Q...-R	
B.CI.x.EHO	-A-AAPEI-DKN-EQ-D-I-Q...R...F-S...N-KL...L-Q...-R	
B.GH.86.D205_ALT	-A-AAPEI-N-E-IG-I-I-Q...R...F-S...A-K...L-A-Q...S...T-P*G-R	
B.JP.01.KR020_IMCJ_KR020_1	-T-APET...D...E-ED-I-Q...R...F-G...IA...L-Q...-R	
G.CI.92.Abt96	-A-E...I-D-A...I...Y-D...K...L-D-RC-GNA...T-GVF	
AB.CM.03.03CM_510_03	-A-AXXI-S-Q-E-RXG-I-I-Q-X...X-F-S-Y-A-VK...L-A-R...X-P*G-Q	
H2_01_AB.CI.90.7312A	-A-AASET-D-E-ED-I-Q...R...F-S...A-K...L-Q...-R	
H2_01_AB.JP.04.04JP_NMC307	-A-AAPEI-D-T-G-E-EDI-Q...R...F-S...A-K...L-Q...-R	
H2_01_AB.JP.07.07JP_NMC716	-A-AAPEI-N-G-E-EDI-Q...R...F-S...A-K...L-Q...-R	
H2_01_AB.JP.08.08JP_NMC842	-A-AAPEI-D-S-XG-E-EDI-Q...R...F-S-Y-A-K...L-Q...-R	
U.FR.96.12034	-A-I...DGA-G-R-I...VR...Y...K...I-L...R-SSR-TTV-*GV-	
MAC.US.x.17EC1		
MAC.US.x.17EFR		
MAC.US.x.1937		
MAC.US.x.2065		
MAC.US.x.251_1A11		
MAC.US.x.251_32H_PJ5		
MAC.US.x.251_BK28		
MAC.US.x.80835		
MAC.US.x.81035		
MAC.US.x.85013		
MAC.US.x.87082		
MAC.US.x.92050		
MAC.US.x.92077		
MAC.US.x.93057		
MAC.US.x.93062		
MAC.US.x.95058		
MAC.US.x.95086		
MAC.US.x.95112		
MAC.US.x.96016		
MAC.US.x.96020		
MAC.US.x.96072		
MAC.US.x.96081		
MAC.US.x.96093		
MAC.US.x.96114		
MAC.US.x.96123		
MAC.US.x.96135		
MAC.US.x.97009		
MAC.US.x.97074		
MAC.US.x.MM142_IVMXX		
MAC.US.x.SMM142_patent		
MAC.US.x.r80025		
MAC.US.x.r90131		
MNE.US.82.MNE_8		
MNE.US.x.MNE027		
SMM.-.pE660_CG7G		
SMM.CI_SIVsmCI2		
SMM.LR_SIVsmL1B1		
SMM.SL_92_S192B		
SMM.SL_SIVsmSL92A		
SMM.US.CFU212		
SMM.US.D215		
SMM.US.FTg		
SMM.US.G078		
SMM.US.G93		
SMM.US.M919		
SMM.US.M922		
SMM.US.M923		
SMM.US.M926		
SMM.US.M934		
SMM.US.M935		
SMM.US.M940		
SMM.US.M946		
SMM.US.M947		
SMM.US.M949		
SMM.US.M950		
SMM.US.M951		
SMM.US.M952		
SMM.US_SIVsmE660-FL10		
SMM.US.x.F236_H4		
SMM.US.x.H9		
SMM.US.x.PBJ14_15		
SMM.US.x.PBJA		
SMM.US.x.PBJ_143		
SMM.US.x.PBJ_6P6		
SMM.US.x.PGMS3		
SMM.US.x.SMES43		
STM.US.89.STM_37_16		

Table with columns: Tat start, exon 1 end, exon 2 start, Tat end. Rows include various HIV strains like MAC.US.x.239, A.CI.88.UC2, etc., with corresponding amino acid sequences.

Rev start	exon 1 end	exon 2 start
MAC_US.x.239	MSNH	EREELRKRRLRIILLHOTNYPYTPGPTANQRRQRKRWRWRLQLALADRIYSFPDPTDPLDLAIQQLNLAIESIPDPPTNTPEALCDPTEDSRSPD
A.CI.88.UC2	-CEK.AD	-QRE
A.DE.x.BEN	-ER.AD	-G.QGK.LR
A.DE.x.PET2_KR.KRCCG	-NGR.AD	-G.QRKQ
A.GH.x.GH1	-HEK.ADG	-QE
A.GM.07.D14	-HEK.AD	-G.QRK
A.GM.x.ISY_SBL_6669_85	-TER.AD	-GV.RK
A.GM.x.MCN13	-TGR.AD	-RK
A.GM.x.MCR35	-TGR.AD	-RK
A.GM.86.FG_clone_NIHZ	-TER.AD	-G.QRK
A.GW.87_CAM2CG	-TER.AD	-G.QRK
A.GW.x.MDS	-NER.AD	-G.QRK
A.IN.07.NNVA	-TER.AG	-GPERK
A.IN.95.CRIK_147	-NER.AD	-G.QRK
A.PT.x.ALI	-TER.AG	-D.QRK
A.SN.85.ROD	-NER.AD	-G.QRK
B.CI.88.UC1	-TTR	-KD.Q.G.L
B.CI.x.20_537	-NAR	-RD.Q.G.L
B.GH.86.D205_ALT	-TAR	-GD.Q.E.L
B.JP.01.KR020_IMCJ_KR020_1	-TTR	-KD.Q.G.LR
G.CI.92.Abt96	-L.E	-X
ABM.CM.03.03CM_510_03	-TTR	-RE.E.L
H2_01_AB_C1_90_7312A	-TAR	-KD.Q.GI.L
H2_01_AB_JP_04_04JP_NMC307	-NAR	-KD.Q.L
H2_01_AB_JP_07_07JP_NMC716	-NTR	-KD.Q.G.L
H2_01_AB_JP_08_08JP_NMC842	-TAR	-KD.Q.G.L
U.FR.96.12034	-P	-GVQR
MAC_US.x.17EC1	-N	
MAC_US.x.17EFR	-XX	R
MAC_US.x.2065	-S	R
MAC_US.x.251_1A11	-S	R
MAC_US.x.251_32H_PJ5	-S	R
MAC_US.x.251_BK28	-S	R
MAC_US.x.80035	-X	R
MAC_US.x.81035	-X	R
MAC_US.x.85013	-X	R
MAC_US.x.87082	-X	R
MAC_US.x.92050	-X	R
MAC_US.x.92077	-X	R
MAC_US.x.93057	-X	R
MAC_US.x.93062	-X	R
MAC_US.x.95058	-X	R
MAC_US.x.95086	-X	R
MAC_US.x.95112	-X	R
MAC_US.x.96016	-X	R
MAC_US.x.96020	-X	R
MAC_US.x.96072	-X	R
MAC_US.x.96081	-X	R
MAC_US.x.96093	-X	R
MAC_US.x.96114	-X	R
MAC_US.x.96123	-X	R
MAC_US.x.96135	-X	R
MAC_US.x.97009	-X	R
MAC_US.x.97074	-X	R
MAC_US.x.MM142_IVMXX	-RS.TG	R
MAC_US.x.SM1142_patent	-RS.TG	R
MAC_US.x.r80025	-R	
MAC_US.x.r90131	-R	
MNE_US.82.MNE_8	-S.AE	R
MNE_US.x.MNE027	-S.AE	R
SMM_pE660_CG7G	-ST	R
SMM_CI_SIVsmCI2	-DO.EG	R
SMM_LR_SIVsmL1B1	-HED	R
SMM_SL_92_S192B	-Q.P	R
SMM_SL_SIVsmSL92A	-QRG0E	R
SMM_US.CFU212	-TD0	R
SMM_US.D215	-ROQ.E	R
SMM_US.FTg	-P.G	R
SMM_US.G078	-LO.GE	R
SMM_US.G979	-SN.G	R
SMM_US.M919	-SS.AG	R
SMM_US.M922	-I.AG	R
SMM_US.M923	-SN	R
SMM_US.M926	-HI.AG	R
SMM_US.M934	-NHI.AG	R
SMM_US.M935	-I.AG	R
SMM_US.M940	-LO.GEG	R
SMM_US.M946	-NHI.AG	R
SMM_US.M947	-SN.D	R
SMM_US.M949	-LO.KE	R
SMM_US.M950	-HI.AG	R
SMM_US.M951	-LO.GE	R
SMM_US.M952	-NHI.AG	R
SMM_US_SIVsmE660-FL10	-ST	R
SMM_US.x.f236_H4	-ST	R
SMM_US.x.H9	-SN	R
SMM_US.x.PBJ14_15	T.SN.G	R
SMM_US.x.PBJA	-SN	R
SMM_US.x.PBJ_143	-SN	R
SMM_US.x.PBJ_6P6	-SN	R
SMM_US.x.PGMS3	-SS.AG	R
SMM_US.x.SMES43	-ST	R
STM_US.89.STM_37_16	-DQ	R

	Rev	end
MAC.US.x.239		107
A.CI.88.UC2		104
A.DE.x.BEN		104
A.DE.x.PE12_KR_KRCG	RGSGINRETL	180
A.GH.x.GH1		104
A.GM.87.D194		104
A.GM.x.ISY_SBL_6669_85	RDRDISKETL	169
A.GM.x.MCN13		108
A.GM.x.MCR35		108
A.GW.86.FG_c1one_NIHZ		108
A.GW.87.CAM2CG		101
A.GW.x.MDS		101
A.IN.07.NNVA		101
A.IN.95.CR1K_147		101
A.PT.x.ALI		108
A.SN.85.ROD		101
B.CI.88.UC1		151
B.CI.x.20_56		151
B.CI.x.EHD		151
B.GH.86.D205_ALT		154
B.JP.01.KR020_IMCJ_KR020_1	RDAVLQEHKGEGRV-	172
G.CI.92.Abt96		101
AB.CM.03.03CM_510_03		149
H2_01_AB.CI.90.7312A		151
H2_01_AB.JP.04.04JP_NMC307		151
H2_01_AB.JP.07.07JP_NMC716		151
H2_01_AB.JP.08.08JP_NMC842		151
U.FR.96.12034		99
MAC.US.x.17EC1		108
MAC.US.x.17EFR		108
MAC.US.x.1937		108
MAC.US.x.2065		108
MAC.US.x.251_1A11		108
MAC.US.x.251_32H_PJ5		108
MAC.US.x.251_BK28		108
MAC.US.x.80035		108
MAC.US.x.81035		108
MAC.US.x.85013		108
MAC.US.x.87082		108
MAC.US.x.92050		108
MAC.US.x.92077		108
MAC.US.x.93057		108
MAC.US.x.93062		108
MAC.US.x.95058		108
MAC.US.x.95086		108
MAC.US.x.95112		108
MAC.US.x.96016		108
MAC.US.x.96020		108
MAC.US.x.96072		108
MAC.US.x.96081		108
MAC.US.x.96093		108
MAC.US.x.96114		108
MAC.US.x.96123		108
MAC.US.x.96135		108
MAC.US.x.97009		108
MAC.US.x.97074		108
MAC.US.x.MM142_IVMXX		108
MAC.US.x.SM142_patent		108
MAC.US.x.r80025		108
MAC.US.x.r90131		108
MNE.US.82.MNE_8		108
MNE.US.x.MNE027		108
SMM.-.pE660.CG7G		101
SMM.CI.SIVsmCI2		104
SMM.LR.SIVsmLIB1		103
SMM.SL.92.SL92B		100
SMM.SL.SIVsmSL92A		104
SMM.US.CFU212		106
SMM.US.D215		108
SMM.US.FTg		107
SMM.US.G078		108
SMM.US.G932		108
SMM.US.M919		108
SMM.US.M922		108
SMM.US.M923		105
SMM.US.M926		108
SMM.US.M934		108
SMM.US.M935		108
SMM.US.M940		108
SMM.US.M946		108
SMM.US.M947		105
SMM.US.M949		108
SMM.US.M950		108
SMM.US.M951		108
SMM.US.M952		108
SMM.US.SIVsmE660-FL10		101
SMM.US.x.F236_H4		105
SMM.US.x.H9		105
SMM.US.x.PBJ14_15		101
SMM.US.x.PBJA		101
SMM.US.x.PBJ_143		105
SMM.US.x.PBJ_6P6		101
SMM.US.x.PGM53		105
SMM.US.x.SME543		105
STM.US.89.STM_37_16		100

signal peptide_end_gp120_start
Env_start
V1

MAC_US_x_17EC1	MAC_US_x_17EFR	MAC_US_x_2065	MAC_US_x_251_1A11	MAC_US_x_251_32H_PJ5	MAC_US_x_251_BK28	MAC_US_x_80835	MAC_US_x_81035	MAC_US_x_85013	MAC_US_x_87082	MAC_US_x_92050	MAC_US_x_92077	MAC_US_x_93057	MAC_US_x_93062	MAC_US_x_95058	MAC_US_x_95086	MAC_US_x_95112	MAC_US_x_96016	MAC_US_x_96020	MAC_US_x_96072	MAC_US_x_96081	MAC_US_x_96093	MAC_US_x_96114	MAC_US_x_96123	MAC_US_x_96135	MAC_US_x_97009	MAC_US_x_97074	MAC_US_x_MM142_IVMXX	MAC_US_x_SMM142_patent	MAC_US_x_r80025	MAC_US_x_r90131	MNE_US_82_MNE_8	MNE_US_x_MNE027	SMM_CI_79_SIVsmCI2	SMM_LR_89_SIVsmLIB1	SMM_SL_92_SIVsmSL92A	SMM_SL_92_S192B	SMM_US_04_G078	SMM_US_04_G932	SMM_US_04_M919	SMM_US_04_M922	SMM_US_04_M923	SMM_US_04_M926	SMM_US_04_M934	SMM_US_04_M935	SMM_US_04_M940	SMM_US_04_M946	SMM_US_04_M947	SMM_US_04_M949	SMM_US_04_M950	SMM_US_04_M951	SMM_US_04_M952	SMM_US_05_D215	SMM_US_06_FTQ	SMM_US_11_SIVsmE660_FL10	SMM_US_86_CFU212	SMM_US_x_F236_H4	SMM_US_x_H9	SMM_US_x_PBJ14_15	SMM_US_x_PBJA	SMM_US_x_PBJ_143	SMM_US_x_PBJ_6P6	SMM_US_x_PG053	SMM_US_x_SMAE3	SMM_x_x_pE660_CG7G	STM_US_89_STM_37_16	MAC_US_x_239	A_CI_88_UC2	A_DE_x_BEN	A_DE_x_PET2_KR_KRCG	A_GH_x_GH1	A_GM_87_D104	A_GM_x_LSY_SBL_6669_85	A_GM_x_MCN13	A_GM_x_MCR35	A_GM_86_FG_clone_NIHZ	A_GW_87_CAM2CG	A_GW_x_MDS	A_IN_07_NNVA	A_IN_95_CR1K_147	A_PT_x_ALI	A_SN_85_ROD	B_CI_88_UC1	B_CI_x_20_56	B_CI_x_EHO	B_GH_86_D205_ALT	B_JP_01_KR020_1MCJ_KR020_1	G_CI_92_Abt96	ABM_CI_03_03CM_510_03	H2_01_AB_CI_90_7312A	H2_01_AB_JP_04_04JP_NMC307	H2_01_AB_JP_07_07JP_NMC716	H2_01_AB_JP_08_08JP_NMC842	U_FR_96_12034	MAC_US_x_17EC1	MAC_US_x_17EFR	MAC_US_x_2065	MAC_US_x_251_1A11	MAC_US_x_251_32H_PJ5	MAC_US_x_251_BK28	MAC_US_x_80835	MAC_US_x_81035	MAC_US_x_85013	MAC_US_x_87082	MAC_US_x_92050	MAC_US_x_92077	MAC_US_x_93057	MAC_US_x_93062	MAC_US_x_95058	MAC_US_x_95086	MAC_US_x_95112	MAC_US_x_96016	MAC_US_x_96020	MAC_US_x_96072	MAC_US_x_96081	MAC_US_x_96093	MAC_US_x_96114	MAC_US_x_96123	MAC_US_x_96135	MAC_US_x_97009	MAC_US_x_97074	MAC_US_x_MM142_IVMXX	MAC_US_x_SMM142_patent	MAC_US_x_r80025	MAC_US_x_r90131	MNE_US_82_MNE_8	MNE_US_x_MNE027	SMM_CI_79_SIVsmCI2	SMM_LR_89_SIVsmLIB1	SMM_SL_92_SIVsmSL92A	SMM_SL_92_S192B	SMM_US_04_G078	SMM_US_04_G932	SMM_US_04_M919	SMM_US_04_M922	SMM_US_04_M923	SMM_US_04_M926	SMM_US_04_M934	SMM_US_04_M935	SMM_US_04_M940	SMM_US_04_M946	SMM_US_04_M947	SMM_US_04_M949	SMM_US_04_M950	SMM_US_04_M951	SMM_US_04_M952	SMM_US_05_D215	SMM_US_06_FTQ	SMM_US_11_SIVsmE660_FL10	SMM_US_86_CFU212	SMM_US_x_F236_H4	SMM_US_x_H9	SMM_US_x_PBJ14_15	SMM_US_x_PBJA	SMM_US_x_PBJ_143	SMM_US_x_PBJ_6P6	SMM_US_x_PG053	SMM_US_x_SMAE3	SMM_x_x_pE660_CG7G	STM_US_89_STM_37_16
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	V1	V2	V3
MAC.US.x.239	DNCT	GLEEQMISCKFNMTGLKRDKKKEYNETWYSADLVCEOGNNTGNESRCYMHNCNTSVIQESCKDHYDAIRFRYCAPPGYALLNCDNTNYSGFMPCKSKVVVSSSTRMMETQTSTWFGFNQTRAEARNTYIYWHGR.DNRTIISLNKYYNLTMKCRP
A.CI.88.UC2	..G-D	..G-VN	..E-Q
A.DE.x.BEN	..G-Y	..M-Q	..E-K
A.DE.x.PE12.KR.KRCC	..G-E	..V-D	..E-K
A.GH.x.GH1	..G-E	..V-D	..E-K
A.GM.x.D104	..G-E	..V-D	..E-K
A.GM.x.ISY.SBL.6669.85	..G-E	..V-D	..E-K
A.GM.x.MCN13	..G-E	..V-D	..E-K
A.GM.x.MCR35	..G-E	..V-D	..E-K
A.GW.86.FG.clone.NIHZ	..G-E	..V-D	..E-K
A.GW.87.CAM2CG	..G-E	..V-D	..E-K
A.GW.x.MDS	..G-E	..V-D	..E-K
A.IN.07.NNVA	..G-E	..V-D	..E-K
A.IN.95.CR1K.147	..G-E	..V-D	..E-K
A.PT.x.ALI	..G-E	..V-D	..E-K
A.SN.85.RDD	..G-E	..V-D	..E-K
B.CI.88.UC1	..G-E	..V-D	..E-K
B.CI.x.20.56	..G-E	..V-D	..E-K
B.CI.x.EHO	..G-E	..V-D	..E-K
B.GW.86.D205.ALT	..G-E	..V-D	..E-K
B.JP.01.KR020.IMCJ.KR020.1	..G-E	..V-D	..E-K
G.CI.92.Abt96	..G-E	..V-D	..E-K
AB.CM.03.03CM.510.03	..G-E	..V-D	..E-K
H2.01.AB.CI.90.7312A	..G-E	..V-D	..E-K
H2.01.AB.JP.04.04JP.NMC307	..G-E	..V-D	..E-K
H2.01.AB.JP.07.07JP.NMC716	..G-E	..V-D	..E-K
H2.01.AB.JP.08.08JP.NMC842	..G-E	..V-D	..E-K
U.FR.96.12034	..G-E	..V-D	..E-K
MAC.US.x.17EC1	..G-E	..V-D	..E-K
MAC.US.x.17EFR	..G-E	..V-D	..E-K
MAC.US.x.1937	..G-E	..V-D	..E-K
MAC.US.x.2065	..G-E	..V-D	..E-K
MAC.US.x.251.1A11	..G-E	..V-D	..E-K
MAC.US.x.251.32H.PJ5	..G-E	..V-D	..E-K
MAC.US.x.251.BK28	..G-E	..V-D	..E-K
MAC.US.x.80035	..G-E	..V-D	..E-K
MAC.US.x.81035	..G-E	..V-D	..E-K
MAC.US.x.85013	..G-E	..V-D	..E-K
MAC.US.x.87082	..G-E	..V-D	..E-K
MAC.US.x.92050	..G-E	..V-D	..E-K
MAC.US.x.92077	..G-E	..V-D	..E-K
MAC.US.x.93057	..G-E	..V-D	..E-K
MAC.US.x.93062	..G-E	..V-D	..E-K
MAC.US.x.95058	..G-E	..V-D	..E-K
MAC.US.x.95086	..G-E	..V-D	..E-K
MAC.US.x.95112	..G-E	..V-D	..E-K
MAC.US.x.96016	..G-E	..V-D	..E-K
MAC.US.x.96020	..G-E	..V-D	..E-K
MAC.US.x.96072	..G-E	..V-D	..E-K
MAC.US.x.96081	..G-E	..V-D	..E-K
MAC.US.x.96093	..G-E	..V-D	..E-K
MAC.US.x.96114	..G-E	..V-D	..E-K
MAC.US.x.96123	..G-E	..V-D	..E-K
MAC.US.x.96135	..G-E	..V-D	..E-K
MAC.US.x.97009	..G-E	..V-D	..E-K
MAC.US.x.97074	..G-E	..V-D	..E-K
MAC.US.x.MM142.IVMXX	..G-E	..V-D	..E-K
MAC.US.x.SM142.patent	..G-E	..V-D	..E-K
MAC.US.x.r80025	..G-E	..V-D	..E-K
MAC.US.x.r90131	..G-E	..V-D	..E-K
MNE.US.82.MNE.8	..G-E	..V-D	..E-K
MNE.US.x.MNE027	..G-E	..V-D	..E-K
SMM.CI.79.SIVsmCI2	..G-E	..V-D	..E-K
SMM.LR.89.SIVsmLIB1	..G-E	..V-D	..E-K
SMM.SL.92.SIVsmSL92A	..G-E	..V-D	..E-K
SMM.SL.92.SL92B	..G-E	..V-D	..E-K
SMM.US.04.G078	..G-E	..V-D	..E-K
SMM.US.04.G932	..G-E	..V-D	..E-K
SMM.US.04.M919	..G-E	..V-D	..E-K
SMM.US.04.M922	..G-E	..V-D	..E-K
SMM.US.04.M923	..G-E	..V-D	..E-K
SMM.US.04.M926	..G-E	..V-D	..E-K
SMM.US.04.M934	..G-E	..V-D	..E-K
SMM.US.04.M935	..G-E	..V-D	..E-K
SMM.US.04.M940	..G-E	..V-D	..E-K
SMM.US.04.M946	..G-E	..V-D	..E-K
SMM.US.04.M947	..G-E	..V-D	..E-K
SMM.US.04.M949	..G-E	..V-D	..E-K
SMM.US.04.M950	..G-E	..V-D	..E-K
SMM.US.04.M951	..G-E	..V-D	..E-K
SMM.US.04.M952	..G-E	..V-D	..E-K
SMM.US.05.D215	..G-E	..V-D	..E-K
SMM.US.06.F1Q	..G-E	..V-D	..E-K
SMM.US.11.SIVsmE660_FL10	..G-E	..V-D	..E-K
SMM.US.86.CFU212	..G-E	..V-D	..E-K
SMM.US.x.F236.H4	..G-E	..V-D	..E-K
SMM.US.x.H9	..G-E	..V-D	..E-K
SMM.US.x.PB114.15	..G-E	..V-D	..E-K
SMM.US.x.PB1A	..G-E	..V-D	..E-K
SMM.US.x.PB1.143	..G-E	..V-D	..E-K
SMM.US.x.PB1.6P6	..G-E	..V-D	..E-K
SMM.US.x.PG053	..G-E	..V-D	..E-K
SMM.US.x.SM143	..G-E	..V-D	..E-K
SMM.x.x.pE660.CG7G	..G-E	..V-D	..E-K
STM.US.89.STM.37.16	..G-E	..V-D	..E-K

	V5	gp120_end_gp41_start	
MAC.US.x.239	W...IDGNQTNITMSAEVALYRLELGDYKLVLEITPIGLAPTQVRYKRYTGG...TSRNKRGVFLVGLGFLATAGSAMAASLTLTAQSRLLL.AGIVQQQQQLLDVVKRQELLRLTVWGKTNLQTRVTAIEKYLKDQAQLNAWGCAFRQVCHTTVPV...PNASLTPK		631
A.CI.88.UC2	T...S-E...F...I...F...SE...SSA...PA...L...S...I...A...S...T...V-D...R		621
A.DE.x.BEN	I...DKNRTH...F...I...F...QR...SST...PV...R...M...A...H...S...Y-L...E-N-IV-D		616
A.DE.x.PET2_KR_KRCG	M...FD...S...F...F...SE...SSA...PV...V...#...#...M...A...R-R...S...Y-L...E-N-IV-D		608
A.GH.x.GH1	V...NS...F...I-V...PF...KE...SSA...PV...M...A...M...A...V-D...S-D		608
A.GM.87.D104	S...V...DGD-R...F...I-V...PF...AE...SSA...PG-H...L...T-A...G...F-R...M...A...A-R...S...V-D...D		607
A.GM.x.ISY_SBL_6669_85	V...DGD-R...F...I-V...PF...AE...SSA...PG-H...L...T-A...G...F-R...M...A...A-R...S...V-D...D		609
A.GM.x.MCN13	A...N-N...F...F...AE...SST...PM...M...A...A...V-DT...E		611
A.GM.x.MCR35	A...NE-N-D...F...F...AE...SST...PM...M...A...A...V-DT...E		611
A.GW.86.FG_clone_NIHZ	A...GD...F...A...F...S...SSA...HQ-HT...M...A...A...S...V-DT...D		608
A.GW.87_CAM2CG	E...R-NQT...F...D...F...PE...SPA...HG-P...A...T...V...T...M...A...I...A...S...V-D...D		618
A.GW.x.MDS	E...K...F...D...F...PE...SPA...HG-P...A...T...V...T...M...A...I...A...S...V-D...D		628
A.IN.07.NNVA	E...K...F...D...F...PE...SFA...SR-OT...M...A...A...A...DS...E-DT-V-N		616
A.IN.95.CR1K_147	VN.E...K.R...F...G-D...V...F...SE...SS...#-G-HT...L-E...D...P...M...A...A...V-D...D		620
A.PT.x.ALI	T...QNN...F...F...SER...SST...PR...M...A...A...A...R...S...V-D...D		614
A.SN.85.R0D	T...QNN...F...F...KE...SST...HG-HT...VS...M...A...A...Q...R...S...V-D...D		617
B.CI.88.UC1	VYVDGNDTK...G...F...EI...SST...P...M...L...M...T...S...A...L...S...ET...D		610
B.CI.x.20_56	...S-E...G...F...NI...SSA...P...R...M...L...M...T...S...A...L...S...ET...D		610
B.CI.x.EHD	...K-L...V...S...K...F...SI...SSV...P...L...M...T...S...A...L...S...ET...D		615
B.GH.86.D205_ALT	S...NST...SV...S...F...R...SSV...KP...M...M...T...S...PV...M...A...A...ET...N		619
B.JP.01.KR020_IMCJ_KR020_1	...TNN-R...S...F...S...SSA...P...P...M...T...S...M...A...A...L...S...KNF-N		608
G.CI.92.Abt96	E...NRSN-H...IF...F...N...SSV...PK...M...T...S...M...R...S...DALGA-KT-E-Q		636
AB.CM.03.03CM_510_03	T...K...F...I...F...TEG...SST...PG...M...A...A...X...S...X...V-E...N		609
H2_01_AB.CI.90_7312A	V...DVGN-R...F...I-V...F...SE...SST...PG-H...T...A...S...M...A...A...V-D...D		620
H2_01_AB.JP.04.04JP_NMC307	X...RENESR...F...I-V...F...AE...SS...PG-H...T...A...S...M...A...A...V-D...D		614
H2_01_AB.JP.07.07JP_NMC716	...KD-T-A...F...I-V...F...EQ...SS...PG-H...A...T...T...S...M...A...A...V-D...D		612
H2_01_AB.JP.08.08JP_NMC842	...L-T...F...I-V...F...EQ...SSD...XX-H...X...T...AX...X...S...M...A...A...V-D...D		611
U.FR.96.12034	...NK...S...R...F...P...SSV...P...M...R...S...M...S...X...I-DT...N		626
MAC.US.x.17EC1	...T...T...I...631		631
MAC.US.x.17EFR	...T...T...I...631		631
MAC.US.x.1937	...HE...G...X...X...XNX-R...631		631
MAC.US.x.2065	...T...N-R...L...631		631
MAC.US.x.251_1A11	...T...S...630		630
MAC.US.x.251_32H_PJ5	...T...S...630		630
MAC.US.x.251_BK28	...T...S...633		633
MAC.US.x.80035	...X...631		631
MAC.US.x.81035	...N...631		631
MAC.US.x.85013	...X...X...631		631
MAC.US.x.87082	...X...631		631
MAC.US.x.92050	...X...631		631
MAC.US.x.92077	...H...X...631		631
MAC.US.x.93057	...G...625		625
MAC.US.x.93062	...X...631		631
MAC.US.x.95058	...N...X...631		631
MAC.US.x.95086	...N...X...631		631
MAC.US.x.95112	...X...X...631		631
MAC.US.x.96016	...H...A...631		631
MAC.US.x.96020	...H...A...631		631
MAC.US.x.96072	...H...A...631		631
MAC.US.x.96081	...X...E...631		631
MAC.US.x.96093	...X...E...631		631
MAC.US.x.96114	...G...X...631		631
MAC.US.x.96123	...G...N...631		631
MAC.US.x.96135	...G...N...631		631
MAC.US.x.97009	...G...N...629		629
MAC.US.x.97074	...G...N...634		634
MAC.US.x.MM142_IVMXX	T...S...V...S...H...633		633
MAC.US.x.SM142_patent	T...S...V...S...H...631		631
MAC.US.x.r80025	...N...X-X...631		631
MAC.US.x.r90131	...N...631		631
MNE.US.82.MNE_8	...N...N...633		633
MNE.US.x.MNE027	...N...P...N...634		634
SMM.CI.79.SIVsmCI2	...N...G...F...I...F...N...SSAT...PA...S...T...A...A...R...S...E-NT-Q-D		640
SMM.LR.89.SIVsmLIB1	...NN-E...I...F...N...S-M...P...R...T...A...A...R...S...E-KT-Q-N		630
SMM.SL.92.SIVsmSL92A	...NE-E...F...N...S...K...R...S...S...L...D...D		637
SMM.SL.92.SL92B	...N-E...M...H...S...K...R...S...S...L...D...D		638
SMM.US.04.G078	...N...M...S...S...L...D...D		642
SMM.US.04.G932	...NK...D-A...M...S...A...S...L...D...D		638
SMM.US.04.M919	...NSN...R...TS...A...S...L...D...D		645
SMM.US.04.M922	S...RD...F...N-R...NA...A...S...L...D...D		644
SMM.US.04.M923	...ND-E...Q...F...G-R...T...A...S...L...D...D		642
SMM.US.04.M926	...K-E...M...N...TS...A...S...L...D...D		643
SMM.US.04.M934	Y...DKEK-T...D...S...R...AS...A...S...L...D...D		636
SMM.US.04.M935	...HD-E...N...R...NT...AP...S...L...D...D		637
SMM.US.04.M940	...YK-E...G...M...S...S...L...D...D		651
SMM.US.04.M946	YD.EHKNK...G...M...S...S...L...D...D		645
SMM.US.04.M947	...V-N-V...G...M...S...S...L...D...D		641
SMM.US.04.M949	...NE...G...M...S...S...L...D...D		633
SMM.US.04.M950	Y...VSSK-E...L...G...M...S...NS...TS...A...R...S...Q...S-M-E		641
SMM.US.04.M951	M...NKD...L...G...M...S...NS...TS...A...R...S...Q...S-M-E		637
SMM.US.04.M952	Y...V-KDE...D...G...M...S...NS...TS...A...R...S...Q...S-M-E		637
SMM.US.05.D215	...LNN-E...D...G...M...S...NS...TS...A...R...S...Q...S-M-E		636
SMM.US.06.FI0	...TNN-E...R...F...F...S...R...T...A...S...L...D...D		633
SMM.US.11.SIVsmE660_FL10	...TNN-E...R...F...F...S...R...T...A...S...L...D...D		639
SMM.US.86.CFU212	Y...K...I...I...N...TT...A...A...S...L...D...D		639
SMM.US.x.F236_H4	...NS-E...I...F...S...R...T...A...S...L...D...D		637
SMM.US.x.H9	...N-K...AF...S...T...A...S...L...D...D		638
SMM.US.x.PBJ14_15	...N-E...AF...S...T...A...S...L...D...D		641
SMM.US.x.PBJA	...N-E...AF...S...T...A...S...L...D...D		641
SMM.US.x.PBJ_143	...N-K...F...S...T...A...S...L...D...D		643
SMM.US.x.PBJ_6P6	...N-E...F...S...T...A...S...L...D...D		641
SMM.US.x.PG053	...N-E...S...R...T...A...S...L...D...D		640
SMM.US.x.SM543	...NN-E...R...T...A...S...L...D...D		639
SMM.x.x.pE660.CG7G	...TNN-E...R...T...A...S...L...D...D		638
STM.US.89.STM_37_16	...TNN-E...A...N...S...T...T...T...S...L...D...D		634

MAC.US.x.239	LQRLSATLQRIEVLRTLETLYQYGSYFHEAVQAVRSATETLAGAWGD.LWETLRRGGRWILAIPRRIRQGLELTL*	Env end gp41 end	879
A.CI.88.UC2	S-N...TA-DW-LKAA--CEWIO-F-IA-T-R-----RG-CKAVQ-I-G-V-----A-IA--		866
A.DE.x.BEN	S-S...TA-DW-LKAAQ--CEWIO-F-FA-TTR-----W--AA-I-G-V-----A-A--		861
A.DE.x.PE12 KR KRCC	T-S-ORA-TT-DW-LTIA--CEWIO-VL-VLA-TTR-----S-R--GAMG-I-G-V-----A-A--		857
A.GH.x.GH1	S-N...TA-DW-LKAA--CEWIO-F-FAKTTR-----S-G--CAAVQ-V-G-V-----A-IA--		852
A.GM.87.D184	S-S...TA-DW-LKAA--CEWIO-FR-FA-T-R-----RG-C-AAQ-I-G-V-----A-IA--		852
A.GM.x.ISY SBL_6669_85	F-S-ORA-TA-DW-LKAA--CEWIO-F-LA-VTR-----TS-GRS--GA-G-I-G-V-----A-IA--		847
A.GM.x.MCN13	F-S-ORA-TA-DW--DAA--CEWIOG-F-FA-ATR-----T-R--GA-Q-I-G-V-----A-IA--		860
A.GM.x.MCR35	F-S-ORA-TA-DW--DAA--CEWIOG-F-FA-ATR-----T-R--GA-Q-I-G-V-----A-IA--		859
A.GW.86.FG c1one NIHZ	F-S-ORA-TA-DW-LKAA--CEWIO-F-LA-TTR-----GR--RA-Q-I-G-V-----A-A--		857
A.GW.87.GAM2CG	F-N.....DW-PKVAF--CEWIO-F-AA-A-R-----CR-V-GM-Q-I-G-V-----A-A--		860
A.GW.x.MDS	F-N.....DW-LRTAF--CEWIO-F-FA-VTR-----TS-CRG--G-G-I-G-V-----A-IA--		870
A.IN.07.NNVA	-N.....DW-LRTAF--CEWIO-F-AA-TTG--S-CRS--G--I-G-V-----A-A--		858
A.IN.95.CR1K 147	-N.....DW-LKTAF--CEWIO-F-FA-T-GK--S-GRN-CG-VE-I-G-V-----A-VA--		860
A.PT.x.ALI	FRS-ORA-TT-DW-LKAA--CEWIO-FR-FA-I-R-----TNT-R--GAVQWV-R-V-----A-IA--		863
A.SN.85.R0D	Y-N.....DW-LRTAF--CEWIO-F-AA-ATR-----CRG--RV-E-I-G-V-----A-IA--		859
B.CI.88.UC1	.....OP-LS-A--I-W-Q--I-AT-A-R--NTGRA--KA--TAEA-I-----A--		858
B.CI.x.20.53	.....OP-LS-A--I-WLO-I-AT-A-G--N-GR--A--TAGA-I-V-----A--		848
B.CI.x.EHO	.....OP-LPPA-R-I-W-Q--I-AA-A-G--S-ART-S-GV--AAGE-I-----A-A--		853
B.GH.86.D205 ALT	.....QH-LPVA--I-W-Q--LR-AA-ATG--S-GET--A--AA-A-I-----A--		860
B.JP.01.KR020 IMCJ KR020_1	.....QQ-LP-A--IGW-Q--I-AT-A-G--TNTGRA--A--TA-A-V-----A--		846
G.CI.92.Abt96	F-I-R--A--H-L-AA-FS-FRWLQ-CT-AT-A-Q--TST-RA--K-G-V-G-----A--		885
AB.CM.03.03CM 510 03	.....QP-LPFA--IGW-Q--LR-AA-ATR-----S-GET--A--GAA-A-----A--		847
H2_01 AB.CI.90.7312A	.....OP-LLFA--IGW-Q--AAGATG--STGRT--A--TA-G-I-V-----A--		858
H2_01 AB.JP.04.04JP NMC307	.....QP-LP-AH--I-W-Q--I-AA-A-G--TSTSRT--A--TA-G-I-----A--		852
H2_01 AB.JP.07.07JP NMC716	.....QP-LL-AH--I-WLO--AA-A-G--S-SRT-I-A--TA-G-I-----A--		850
H2_01 AB.JP.08.08JP NMC842	.....QPFP-VP-AH--I-WLO--AA-A-G--TN-SRT-I-A--AA-G-I-----X--		849
U.FR.96.12034	F-S-I.....R-HL-IA--Q-K-F-FGKA-R--SRTGRE-----G-V--LR-----F-A--		868
MAC.US.x.17EC1			880
MAC.US.x.17EFR			879
MAC.US.x.1937			880
MAC.US.x.2065			880
MAC.US.x.251_1A11			877
MAC.US.x.251_32H_PJ5			879
MAC.US.x.251_BK28			881
MAC.US.x.80835			880
MAC.US.x.81035			880
MAC.US.x.85013			880
MAC.US.x.87082			880
MAC.US.x.92050			880
MAC.US.x.92077			880
MAC.US.x.93057			880
MAC.US.x.93062			874
MAC.US.x.95058			880
MAC.US.x.95086			880
MAC.US.x.95112			880
MAC.US.x.96016			880
MAC.US.x.96020			880
MAC.US.x.96072			880
MAC.US.x.96081			880
MAC.US.x.96093			880
MAC.US.x.96114			880
MAC.US.x.96123			880
MAC.US.x.96135			880
MAC.US.x.97009			880
MAC.US.x.97074			878
MAC.US.x.MM142 IVMXX			882
MAC.US.x.SMM142_patent			880
MAC.US.x.r80025			880
MAC.US.x.r90131			880
MNE.US.82.MNE 8			881
MNE.US.x.MNE027			883
SMM.CI.79.SIVsmCI2			887
SMM.LR.89.SIVsmLIB1			879
SMM.SL.92.SIVsmSL92A			886
SMM.SL.92.SI92B			887
SMM.US.04.G078			891
SMM.US.04.G932			887
SMM.US.04.M919			894
SMM.US.04.M922			893
SMM.US.04.M923			891
SMM.US.04.M926			892
SMM.US.04.M934			885
SMM.US.04.M935			886
SMM.US.04.M940			900
SMM.US.04.M946			894
SMM.US.04.M947			890
SMM.US.04.M949			882
SMM.US.04.M950			890
SMM.US.04.M951			886
SMM.US.04.M952			886
SMM.US.05.D215			885
SMM.US.06.F1Q			882
SMM.US.11.SIVsmE660_FL10			888
SMM.US.86.CFU212			888
SMM.US.x.F236 H4			886
SMM.US.x.H9			897
SMM.US.x.PB114 15			890
SMM.US.x.PBJA			890
SMM.US.x.PBJ 143			892
SMM.US.x.PBJ 6P6			890
SMM.US.x.PGMS3			886
SMM.US.x.SMS43			888
SMM.x.x.pE660.CG7G			887
STM.US.89.STM_37_16			883

	Nef start	R17Y mutation	premature stop in Mac239	max HIV-1 similarity
MAC.US.x.239	MGGAISMRRSRPSGDLRQRLLRARGE.	TYGRLLGLEVEDVGSQSPGLDKGLSSLSCE.	GQK.YNQGYMNTPWNR.	PAEEREKLAIRKQNMDDIDE+DDD.LVGV.SVRPKVPLRTMSYKLAIDMSHFIEKGGLEGIYSARRHRILDIYLEKEEGIPDWQDYTSGP
A.CI.88.UC2	-ASG-KKL-KQ-OG-E	-G.G-V-QCSAGSGES-Q-SGREQK-P	-Q.R-D-T-M-GQ-ES-KQ-V-SD-N-Q	-TSR-P-T-V-MF-RD-L-V-N-N-H
A.DE.x.BEN	-ASG-KKL-KH-RG-E	-D.G-KQRDASGGE-FOEESGREON-P	-Q.Q-E-S-T-Q-DL-Q-V-SD-I	-P-T-R-R-E-T-Q-MF-RD-L-N-H
A.DE.x.PET2_KR_KRCG	-ASG-KKC-SLOG-E	-C.GQWDSAGAE-LFOE-SGR-ONLP	-R.Q-Q-DF-T-AG-GTL-KQ-V-ADN-N-I	-P-T-R-A-T-V-I-LN-D-M-E-M-N-H
A.GH.x.GH1	-ASG-KKH-KH-OR-E	-H.G-G-VQICNASGGE-QE-SG-QK-P	-Q.Q-R-DF-T-I-GQ-KL-KQ-SS	-P-T-R-A-T-V-KR-D-MF-RD-L-N-H
A.GM.07.D104	-ASG-KK-EH-OG-E	-G.G-VKQRNASGGE-QE-SGREQK-P	-Q.Q-EF-T-AIGQ-WS-KQ-V-SD	-P-M-R-E-T-V-F-RE-LF-N-H
A.GM.x.ISY_SBL_6669_85	-ASG-KK-EG-RG-QE	-G.AC-G-ND-S-G-FHE-SGREQKLP	-R.Q-Q-DF-T-T-ES-Q-V-SD	-DTSR-A-T-RM-V-DL-D-M-E-N-H-L
A.GM.x.MCN13	-ASG-KE-OG-E	-C.GHCSGSGGE-L-QEESGREOR-P-Y	-R.Q-Q-DF-T-K-G-EL-KQ-R-V-SD	-T-R-ELTHR-V-M-E-A-N-H
A.GM.x.MCR35	-ASG-KE-OG-E	-C.GHCSGSGGE-L-QEESGREOR-P-Y	-R.Q-Q-DF-T-K-G-EL-KQ-R-V-SD	-T-R-ELTHR-V-M-E-A-N-H
A.GM.86.FG clone NIHZ	-ASG-KK-K-LOG-0E-Q	-C.GRCN-SGG-L-HE-SGREON-P	-R.Q-Q-DFV-T-A-EL-KQ-V-LD-Q	-P-T-R-P-TF-V-LF-Q-L-D
A.GW.87_CAM2CG	-ASG-KK-LOG-0E-Q	-A.G.C.ECYNALGESLR-QE-S-REON	-R.Q-Q-DF-T-A-GK-NI-Q-V-SD	-Y-PAT-R-A-T-V-LF-E-A-N-H
A.GW.x.MDS	-ASG-KK-PRG-E	-A.G.C.GHND-LGGE-QE-S-OR-P	-Q.Q-Q-DF-T-G-DS-Q-V-SD	-Y-T-RT-A-T-V-MF-E-N-H
A.IN.07.NNVA	-ASG-KKH-PRG-E	-A.G.AC.GRCDALGGE-RFOEESGR-O-P	-RQ.NH-E-ADR-#-ST-PNDW-GE-#-V-SD	-P-TSRTO-E-T-F-L-D-M-E-RE-I-L-N
A.IN.95.CRIK_147	-ASG-KKH-K-RG-E	-QA-CVQGWK-LGGE-QE-S-OR-P	-R.Q-Q-DF-T-T-KG-DL-Q-V-SD	-T-R-T-RM-V-L-MF-E-L-N-H
A.PT.x.ALI	-ASG-KK-G-LOG-E	-QTP-C.GQCSGSGG-Q-SGR-QKLP	-R.Q-Q-DF-T-T-EL-KQ-V-LD-S	-T-R-Q-T-V-L-R-MF-E-N-H
A.SN.85.RUD	-ASG-KKH-PRG-QE	-A.G.AC.GYWN-SGGE-RFQE-S-REQK-P	-RQ.Q-Q-DF-KD-A-NL-Q-V-SD	-Q-R-T-P-THR-V-L-TR-MF-E-K-N-H
B.CI.88.UC1	-S-G-KKQ-KQORG-E	-TQE-P-K-SEGRKQOS-R-S-D-N-P-Y	-R.R-NA-RA-GGG-Q-DT-S-DNE	-Y-NR-S-T-M-LF-E-TH-N-VSG-N-Y
B.CI.x.20_56	-S-G-KKQ-KQORG-E	-T.E.P-K-SE-RRGOS-R-ES-D-N-P-Y	-R.R-NA-RTKGR-#Q-DK-NS-D-E	-A-Y-SK-A-T-V-L-LF-E-TH-N-VSG-N-H
B.CI.x.EHD	-S-G-KKQ-KQORG-E	-R.G.PR-ESS-ROERSL-Y-S-D-N-P-D	-R.R-NA-LGA-GGG-DS-ED-DNE	-R-G-P-TF-V-L-E-M-E-K-T-N-VSG-N-H
B.GH.86.D205_ALT	-S-G-KK-ERQOG-EK	-S-RRQES-R-ES-D-N-P	-R.R-NA-RGA-GGG-Q-DA-ES-D-E	-AICKT-I-P-T-V-Q-M-E-T-F-N-VSG-N-H
B.JP.01.KR020_IMCJ_KR020_1	-S-G-KKQ-KQRRG-E	-QTQEG.P-S-RRQGS-R-S-DSN-P	-R.R-NA-GAOGGG-Q-GIE-S-DNE	-Y-NR-P-T-W-Q-M-E-L-T-N-VSG-N-H
G.CI.92.Abt96	-S-G-KK-APQQLG-K-Q	-P-K-WEGL-E-YREESG	-Q-T-F-T-A-X-N-V-SD-N	-P-Y-V-E-M-Q-N-A
ABM.CM.03.03CM_510_03	-S-G-KK-EQQRG-E	-V.ER.P-K-S-GRRERS-R-EES-D-N-P	-N.N-A-LGA-GGG-Q-A-ES-D-E	-A-Y-SR-P-T-T-L-D-E-T-F-N-VSG-N-H
H2_01_AB.CI.90_7312A	-S-G-KKQ-KQORG-E	-Q.G.P-S-GRGGS-EES-R-N-P	-R.R-NA-GA-GGG-Q-DIEED-DNE	-Y-Q-P-T-F-E-T-F-N-R-VGG-N-Y
H2_01_AB.JP.04.04JP_NMC307	-S-G-KKQ-K-QRG-E	-PAG.P-SEGRRES-EES-D-N-P	-R.R-NA-GA-GGG-Q-DIEED-D-E	-A-Y-NK-A-T-F-E-T-F-N-VSG-N-H
H2_01_AB.JP.07.07JP_NMC716	-S-G-KKQ-K-PRG-E	-PAG.P-S-RRGES-R-E-S-D-N-P	-R.R-NA-GA-GGG-Q-DIEED-D-E	-A-Y-NK-S-T-F-E-T-F-N-VSG-XN-X
H2_01_AB.JP.08.08JP_NMC842	-S-G-KKQ-K-LRE-E	-TPAG.P-S-GRGGS-EXS-D-NXP	-R.R-NA-GA-GGG-Q-DIEED-DNE	-A-Y-NK-E-T-F-E-T-F-N-VSG-N-H
U.FR.96.12034	-S-KKH-KR-K-E-A	-N-W-LG-FELYQ-SG-D-RF	-A-GQG-SE-EF-T-TGKD-Q-KQ-V-E-N	-A-R-A-T-V-D-F-Q-N-N
MAC.US.x.17EC1	S		K	Q
MAC.US.x.17EFR		G		EX
MAC.US.x.1037				
MAC.US.x.2065	XX	X	X	
MAC.US.x.251_1A11	T	ST	E	S
MAC.US.x.251_32H_PJ5	R	KSA	K	V
MAC.US.x.251_BK28	K	A	K	
MAC.US.x.80035				
MAC.US.x.81035				
MAC.US.x.85013	X	X		
MAC.US.x.87082				
MAC.US.x.92050				
MAC.US.x.92077				
MAC.US.x.93057				
MAC.US.x.93062	A	R		
MAC.US.x.95058				
MAC.US.x.95086				
MAC.US.x.95112				
MAC.US.x.96016				
MAC.US.x.96020				
MAC.US.x.96072				
MAC.US.x.96081				
MAC.US.x.96093	T	X		
MAC.US.x.96114	X			
MAC.US.x.96123				
MAC.US.x.96135				
MAC.US.x.97009				
MAC.US.x.97074	X	X		
MAC.US.x.MM142_IVMXX	X	K	PR	
MAC.US.x.SM1142_patent	KK	K	#R	
MAC.US.x.r80025				
MAC.US.x.r90131				
MNE.US.82.MNE_8	T	K	KSP	
MNE.US.x.MNE027	T	KK	KSP	
SMM.CI.79_SIVsmCI2	N	KK	KPHGP	
SMM.LR.89_SIVsmLIB1	G	KM	KRH	G
SMM.SL.92_SIVsmSL92A	NT	SKAKK	POS	DK
SMM.SL.92_S192B	IT	SKPA	KH	KK
SMM.US.04.G078	G	KKO	KRR	N
SMM.US.04.G932	G	KKO	KOH	G
SMM.US.04.M919	ASG	KKO	KORHG	E
SMM.US.04.M922	A	G	KK	OP
SMM.US.04.M923	T	KKQRKHG	N	E
SMM.US.04.M926	A	G	KK	KQOQG
SMM.US.04.M934	ASG	KK	PTORTG	E
SMM.US.04.M935	A	G	KKQYKOH	G
SMM.US.04.M940	G	KKO	K-H	E
SMM.US.04.M946	ASG	KK	KOHAG	E
SMM.US.04.M947	VT	KKQR	RG	N
SMM.US.04.M949	G	KKO	KOH	E
SMM.US.04.M950	AGG	KKO	KORTG	E
SMM.US.04.M951	G	KKO	K-R	E
SMM.US.04.M952	AGG	KK	K-HAG	E
SMM.US.05.D215	VG	KK	KR	SN
SMM.US.06.F10	G	KKQHKRHLK	E	E
SMM.US.11_SIVsmE660_FL10	V	KKQC	RG	N
SMM.US.86.CFU212	AFG	KK	C	QOEG
SMM.US.x.F236_H11	KKQYKRG	N	E	Q
SMM.US.x.H9	VT	KKQRXAG	N	XE
SMM.US.x.PB114_15	VT	KKQR	RG	N
SMM.US.x.PBJA	VT	KKQR	RG	N
SMM.US.x.PBJ_143	VT	KKQRXAG	N	XE
SMM.US.x.PBJ_6P6	VT	KKQR	RG	N
SMM.US.x.PGMS3	A	G	KKO	OR
SMM.US.x.SN0343	V	KKQK	RG	N
SMM.x.x.pE660.CG7G	V	KKQC	RG	N
STM.US.89.STM_37_16	ASG	KKQRKHQ	E	E

	max HIV-1 similarity	normal Nef end
MAC.US.x.239	GIRYPKTFGLWKLVPVNSDEAQA...EEDL.HYLMHPAQTSQWDDPWGVELAWKFDPTLAYTYEAYVRYPEEFGSKSLGSEEEVRRRLT..ARGLLNM...ADKKETR*	262
A.CI.88.UC2	-V-MC-----M-Q-E-E-D-T-NC-----RY-IH-T-V-R-NSM-E-K-FIL-----H---P-K-WKAK-K---IPYS...E.....	258
A.DE.x.BEN	-V-MY-----S-EL-Q-E-E---A-NC-V---RH-EH-T-V-Q-SM-N-K-FIL-----H---P-K-WKAK-K---IPYS...E.....	258
A.DE.x.PET2_KR_KRCG	-V-F-----D-POG-----E-D-C-L---GS-H-T-M-R---R-E-T-FN-----Y---P-K-WKAK-K---IPFS.....	256
A.GH.x.GH1	-V-MC-----D-O-E-E-D-T-N-T---RH-EH-T-L-R---D-K-FILH-----H---P-K-WKAK-K---IPYS.....	256
A.GW.87.D194	-T-MY-----DI-Q-R---V-T-NC-V---RY-EH-T-V-R---M-S-K-FILH-----H---P-K-WKAK-K---IPYS...E.....	258
A.GM.x.ISY_SBL_6669_85	-V-MF-----D-PO-GE---DT-T-C-L-S-V-RF---H-T-V---M-HE-TT-FILH-----H---ME-DDWKAK-K---IPFS.....	257
A.GM.x.MCN13	-MF-----D-TROQE---D-GT-C-L---RF-H-T-I---Y---HE-K-FILH-----H---P-DWKAK-K---IPFS.....	257
A.GM.x.MCR35	-MF-#-----DT-Q-GEDTET-T-T-C-L---RH-WH-T-V---SM-LV---FTL-----HN---P-K-WKA-K---IPFS.....	214
A.GW.86.FG_clone_NIHZ	-V-MF-----DLPDD---MT-T-C-V---I-KF-QH-T-V-R---SL-E-T-FKL-----HQ---P-D-WKAK-K---IPFS.....	181
A.GW.87_CAM2CG	-T-C-----MFH-----D-T-T-C---KF-RH-T-V-R---D-V-FRLH-----H---P-WKA-K---IPFN.....	261
A.GW.x.MDS	-V-MF-----D-PO-GE---DT-T-C-L-V---RH-TH-T-V-R---K-HD-K-FILH-----Y---P-WKA-K---IPFS.....	256
A.IN.07.NNVA	-V-MF-----D-PO-GE---DT-T-C-L-V---RH-TH-T-V-R---K-HD-K-FILH-----Y---P-WKA-K---IPFS.....	172
A.IN.95.CR1K_147	-V-MF-----D-PO-GE---DT-T-C-L-V---RH-TH-T-V-R---K-HD-K-FILH-----Y---P-WKA-K---IPFS.....	263
A.PT.x.ALI	-V-MF-----D-PO-GE---DT-T-C-L-V---RH-TH-T-V-R---K-HD-K-FILH-----Y---P-WKA-K---IPFS.....	257
A.SN.85.R0D	-V-MF-----DIPE-ER---GA-T-SC-V---I-S-IH-T-R---L-HD-V-FN-----YQ---P-K-WKA-K---IPTD.....	238
B.CI.88.UC1	-V-R-----IPE-EE---RA-W-SC-V---S-H-T-V-Q---L-HD-I-FNKF-----YQ---P-K-WKA-K---IPTD.....	238
B.CI.x.20_56	-V-F-----I-MIA-PE---DE-T-C-V---A-HE-T-V-Q---SL-D-V-FS-F-----YQ---MP-K-WKAK-R---IPTE.....	239
B.CI.x.EHD	-V-Y-----E-PAATR---E-T-C-V---I-S-IH-T-I-Q---SL-D-V-FN-F-----YQ---P-WKA-K---IPTD.....	241
B.GH.86.D205_ALT	-V-Y-----IPE-DK---A-T-SC---A-P-VH-T-I-Q---SL-D-I-FN-----YQ---P-K-WKV-K---IPTD.....	239
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H2_01_AB.JP.07.07JP_NMC716	-X-X-----E-AAATP---E-T-C-V---S-H-T-V-Q---SL-X-S-FN-----YQ---MP-K-WKA-K---IPTE.....	240
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