

Protein Alignment Summary Table (**Gag**)

Name(s)	Locus	Accession No.	First Author	Reference
Q23-CxC-CG Q23	HIVQ2317	AF004885	Poss M	<i>J Virol</i> 72 (10) 8240-8251 (1998)
SE7253	ASOSE7253	AF069670	Carr JK	Unpublished (1998)
SE8538	ATZSE8538	AF069669	Carr JK	Unpublished (1998)
SE6594	AUGSE6594	AF069672	Carr JK	Unpublished (1998)
SE7535	AUGSE7535	AF069671	Carr JK	Unpublished (1998)
92UG037	H92UG037	U51190	Gao F	<i>J Virol</i> 70 (3) 1651-1657 (1996)
U455 U455A	HIVU455A	M62320	Oram JD	<i>ARHR</i> 6 (9) 1073-1078 (1990)
MBC18 C18 MBCC18	AUMBCC18B	AF042102	Oelrichs RB	<i>ARHR</i> 14 (9) 811-814 (1998)
RL42	HCHRL42CG	U71182	Graf M	<i>ARHR</i> 14 (3) 285-288 (1998)
D31	HIV1D31	U43096	Kreutz R	<i>ARHR</i> 8 (9) 1619-1629 (1992)
HXB2 HXB2CG	HIVHXB2R	K03455	Wong-Staal F	<i>Nature</i> 313 (6000) 277-284 (1985)
HXB2R HXB2RCG				
LAI HIVHXB2CG				
LAI BRU BRUCCG	HIVLAICG	K02013	Wain-Hobson S	<i>Cell</i> 40 , 9-17 (1985)
OY1, 397	HIVOY1	M26727	Huet T	<i>AIDS</i> 3 (11) 707-715 (1989)
CAM1	HIVCAM1	D10112	Melntosh AA	Unpublished (1991)
MANC	HIV1MANC	U23487	Zhu T	<i>Nature</i> 374 (6522) 503-504 (1995)
JH31	HIVJH31	M21137	Komiyama N	<i>ARHR</i> 5 , 411-19 (1989)
3202A21	HIV1ACH320A	U34604	Gullion C	<i>ARHR</i> 11 (12) 1537-1541 (1995)
ACH3202A21				
89SP061	H89SP061	AJ006287	Olivares I	<i>ARHR</i> 14 (18) 1649-1651 (1998)
JRCSF	HIVJRCSF	M38429	O'Brien WA	<i>Nature</i> 348 (6296) 69-73 (1990)
MNCG MN	HIVMN	M17449	Gurgo C	<i>Virology</i> 164 , 531-536 (1988)
RF HAT3	HIVRF	M17451	Starich BR	<i>Cell</i> 45 , 637-648 (1986)
SF2 SF2CG LAV2	HIVSF2CG	K02007	van Beveren CP	In: Weiss <i>RNA Tumor Viruses</i> , 2nd Edition (1985)
ARV2 LAV-2 ARV-2				

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WEAU160 GHOSH	HIVWEAU160	U21135	Ghosh SK	Unpublished (1995)
92BR025	H92BR025	U52953	Gao F	<i>J Virol</i> 70 (3) 1651-1667 (1996)
BW96BW0502	BW96BW0502		Novitsky V	Unpublished (1998)
ETH2220 C2220	HIVETH2220	U46016	Salminen MO	<i>ARHR</i> 12 (14) 1329-1339 (1996)
11246	IN11246	AF067159	Lole KS	<i>J Virol</i> 73 (1) 152-160 (1999)
301904	CIN301904	AF067157	Lole KS	<i>J Virol</i> 73 (1) 152-160 (1999)
301999	CIN301999	AF067154	Lole KS	<i>J Virol</i> 73 (1) 152-160 (1999)
94UG1141	94UG114	U88824	Gao F	<i>J Virol</i> 72 (7) 5680-98 (1998)
84ZR085	84ZR085	U88822	Gao F	<i>J Virol</i> 72 (7) 5680-98 (1998)
NDK	HIVNDK	M27323	Spire B	<i>Gene</i> 81 , 275-284 (1989)
Z2Z6 Z2 Z34	HIVZ2Z6	M22639	Theodore T	Unpublished (1988)
93BR0201	93BR020	AF005494	Gao F	<i>J Virol</i> 72 (7) 5680-98 (1998)
FIN9363	FIN9363	AF075703	Salminen M	Unpublished (1998)
BZ162	HIVBZ162	L11751	Louwagie JJ	<i>AIDS</i> 7 , 769-780 (1993)
VI174	HIVVI174	L11782	Louwagie JJ	<i>AIDS</i> 7 , 769-780 (1993)
VI325	HIVVI325	L11789	Louwagie JJ	<i>AIDS</i> 7 , 769-780 (1993)
VI69	HIVVI69	L11796	Louwagie JJ	<i>AIDS</i> 7 , 769-780 (1993)
DRCBL	DRCBL	AF084936	Debyser Z	<i>ARHR</i> , in press (1999)
HH8793 G-FL-HH8793	HH8793121	AF061641	Salminen M	<i>ARHR</i> 8 (9) 1733-1742 (1992)
SE6165 G6165 G-SE- G6165	AF061642	AF061642	Carr JK	<i>Virology</i> 247 (1) 22-31 (1998)
VI991	VI991		Laukkanen T	Unpublished (1998)
VI997	VI997		Laukkanen T	Unpublished (1998)
U40561, U4056, 90CR056, H90CF056	90CF056	AF005496	Murphy E	<i>ARHR</i> 9 (10) 997-1006 (1993)

SE91733	SE91733	AF082395	Laukkanen T	<i>ARHR</i> 15 (3) 293-297 (1999)
SE92809	SE92809	AF082394	Laukkanen T	<i>ARHR</i> 15 (3) 293-297 (1999)
YBF30	NCMYBF30	AJ006022	Simon F	<i>Nature medicine</i> 4 (9) 1032-1037 (1998)
ANT70C	HIVANT70C	L20587	Vanden Haesevelde M	<i>J Virol</i> 68 (3) 1586-1596 (1994)
MVP5180	HIVMVP5180	L20571	Gurtler LG	<i>J Virol</i> 68 , 1581-1585 (1994)
90cr402 HIVU51188	HIV90CF402	U51188	Gao F	<i>J Virol</i> 70 (10) 7013-7029 (1996)
90CR402 CAR-E 4002				
93TH253	H93TH253	51189	Gao F	<i>J Virol</i> 70 (10) 7013-7029 (1996)
CM240	HIV1CM240	U54771	Carr JK	<i>J Virol</i> 70 (9) 5935-5943 (1996)
DJ263	DJ263	AF063223	Carr JK	<i>Virology</i> 247 (1) 22-31 (1998)
DJ264	HDDJ264	AF063224	Carr JK	<i>Virology</i> 247 (1) 22-31 (1998)
IBNG AG_LNG-IbNG	HIVIBNG	L39106	Howard TM	<i>ARHR</i> 10 (12) 1755-1757 (1994)
94CY032-3	AF049337	AF049337	Gao F	<i>J Virol</i> 72 (12) 10234-10241 (1998)
GR11 97PVCH	AF049292	AF049292	Nasioulas G	<i>ARHR</i> 14 (8) 685-690 (1998)
97PVMY GR84	97PVMY	AF119819	Nasioulas G	<i>ARHR</i> 14 (8) 685-690 (1998)
CPZGAB CIVCG	SIVCPZGAB	X52154	Huet T	<i>Nature</i> 345 , 356-359 (1990)
CPZANT	SIVCPZANT	U42720	Vanden Haesevelde MM	<i>Virology</i> 221 (2) 346-350 (1996)
SIVCPZUS	SIVCPZUS	AF103818	Gao F	<i>Nature</i> 397 (6718) 436-441 (1999)

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HIV-1 GAG

Amino Acids

Amino Acids

HIV-1 GAG

		membrane binding	nls	phos site
B.FR.HXB2
A.KE.Q23.CXC.CG
A.SE.SOSF87253
A.SE.TZSR8538
A.SE.UGSR6594
A.SE.UGSR7535
A.UG.92UG037
A.UG.U455
B.AU.MBC18
B.ON.RL42
B.DE.D31
B.FR.LAI
B.GA.OY1
B.GB.CAM1
B.GB.MANC
B.JP.JH31
B.NL.ACH320A
B.SP.89SP061
B.US.JRCGF
B.US.MN
B.US.RF
B.US.SF2
B.US.WEAU160
C.BR.92BR025
C.BW.BW96BW0502
C.ET.ETH2220
C.IN.11246
C.IN.301904
C.IN.301999
D.UG.94UG1141
D.ZR.84ZR085
D.ZR.NDK
D.ZR.Z226
F.BR.93BR0201
F.PI.FIN9363
F.BR.BZ162
F.ZR.VI174
F.BE.VI335
F.RW.VI69
G.BE.DRCBL
G.FI.HH8793
G.SE.SE6165
H.BE.VI991
H.BE.VI997
H.CP.90CG056
J.SE.SE91733
J.SE.SE92803
N.CM.YBR30
O.CM.ANT70C
O.CM.MVP5180
AE.CP.90CR402
AE.TH.93TH253
AE.TH.CM240
AG.DJ.DJ263
AG.DJ.DJ264
AG.NG.IBNG
ACT.CY.94CY032
ACT.GR.97PVMH
AGI.GR.97PVMH
CFZGMB
CEZAMT
SIVC2PZUS

	'p2'	V p7	- Zn-motif -	pol cds start ->	'p1'	V p6	vpr binding	
@_FR_HXB2	VTNS.....	ATIMNQGRKFNROKIVKCFPNCGKKEGHARRCRAPRRKKGCKWCKGKEGHOMKDDCT	.....	.....	.....	.....	.....	ESPRSGVETT
A_KE_Q23-CXC-CG	-OHT.....	.....	.....	.....	.....	.....	.....	-TCGM-E--
A_SE_Q23S7253	-I-GM-E-I
A_SE_TGSR8538	-I-GM-EVI
A_SE_UGSR6594
A_SE_UGSR7355
A_UG_92UD037
A_UG_04455
B_AU_MBC18
B_CN_RL42
B_DE_D31
B_FR_LAI
B_GA_OYI
B_GB_CAM1
B_GB_MANG
B_JP_JH31
B_NL_ACH220A
B_SP_89SR061
B_US_JRCSF
B_US_MN
B_US_RF
B_US_SF2
B_US_WEAU160
C_BR_92BR025
C_BW_BW96BM0502
C_ET_ETH2220
C_IN_11246
C_IN_301994
C_IN_301999
D_UG_94UG1441
D_ZR_84ZK085
D_ZR_NDK
D_ZR_2226
F_BR_93BR0201
F_FT_FIN9363
F_BR_BZ162
F_ZR_VI174
F_BE_VI325
F_RM_VI69
G_BE_DRG1
G_FT_HH8793
G_SE_SE6165
H_BE_VI991
H_BE_VI997
H_CF_90CF056
J_SE_SE91733
J_SE_SE92809
N_CM_YBF30
O_CM_ANT70C
O_CM_MVP5180
AE_CF_90CFR402
AE_TH_93TH253
AE_TH_CM240
AG_DU_DJ263
AG_DU_DJ264
AG_NG_IBNG
AGI_CY_94CY032
AGI_GR_97PVCH
AGI_GR_97PVWY
CZGAB
CZGAB
CZANT
STVczZUS

		vpr binding	p6 terminus
B.FR.HXB2	..TPPKOEP	..IDKELY	..PLTSLRSLFRGNDPSSQ
A.KE.Q23.CXC.CG	..VS-L-Q	..K-R-QAQ	..V-K-----L---
A.SE.S05F7253	..AS-P-Q	..K-R-QNS	..SV-K-----L---
A.SE.TZSR8538	..S-P-Q	..K-QV-P	..V-K-----L---
A.SE.UGSE6594	..AS-PR-Q	..TP	..SV-K-----L---
A.SE.UGSE7355	..AS-P-Q	..KQDP	..V-K-----L---
A.UG.92UG037	..VS-P-Q	..N-RDQN	..P-SV-K-----L---
A.UG.U455	..S-A-L	..K-R-QT	..V-K-----L---
B.AU.MBC18	..S-----	..IDR-SS-	..A-K-----L---
B.CN.RL42	..F-----		..A-K-----L---
B.DE.D31	..-----		..A-----L---
B.FR.LAI	..-----		..G-----L---
B.GA.OYI	..S-----		..A-----L---
B.GB.CAM1	..A-----		..A-----L---
B.GB.MANG	..S-----		..R-----L---
B.JP.JH31	..S-----		..R-----L---
B.NL.ACH320A	..S-----		..R-----L---
B.SP.89SF061	..S-L	..R	..A-----L---
B.US.JRCSF	..S-----		..L-----L---
B.US.MN	..S-----		..L-----L---
B.US.MN	..Y-----		..KKQET-----L---
B.US.MN	..S-----		..K-----L---
B.US.RF	..S-----		..K-----L---
B.US.SF2	..S-----		..K-----L---
B.US.WEAV160	..S-----		..K-----L---
C.BR.92BR025	..SR--T		..K-----L---
C.BW.BW96BWM0502	..AB---	..K-R-P-RE	..A-K-----L---
C.ET.ETH2220	..SP-L	..K-R	..A-K-----L---
C.IN.11246	..P-AP	..K-R	..K-----L---
C.IN.301904	..P-AP	..K-R	..K-----L---
C.IN.301999	..AL---	..K-R	..K-----L---
D.UG.94UG141	..S-----		..Q-----L---
D.ZR.84ZR085	..S-----		..Q-----L---
D.ZR.84ZR085	..S-----		..Q-----L---
D.ZR.NDK	..S-----		..Q-----L---
D.ZR.Z2Z6	..S-----		..Q-----L---
F.BR.93BR0201	..SP-Q	..K-EG	..P-A-K-----L---
F.BR.FIN9363	..SP-Q	..K-EG	..P-A-K-----L---
F.FI.FIN9363	..SP-Q	..K-EG	..P-A-K-----L---
F.BR.BZ162	..N-SP-Q	..KEEG	..P-A-K-----L---
F.ZR.VI174	..SP-Q	..KGG	..P-A-K-----L---
F.BE.VI325	..SP-Q	..K-OG	..S-----L---
F.RW.VI69	..SP-Q	..K-EG	..S-----L---
G.BE.DRCGL	..A-SP-Q	..KE	..S-----L---
G.FI.HH8793	..A-SP-P	..KE	..TH-----S-----L---
G.SE.SE6165	..A-SP-M	..KE	..P-----S-----L---
H.BE.VI991	..SP-L	..KEQ	..P-----S-----L---
H.BE.VI991	..SSP-L	..K-P	..FA-K-----L---
H.CF.90CF056	..SSP-OL	..K-P	..A-K-----L---
J.SE.SE91733	..SP	..K	..S-----L---
J.SE.SE92809	..SP	..K	..S-----L---
N.CM.YBF30	..SP	..K	..S-----L---
O.CM.ANT70C	..STOCKEM-N	..QER	..TENS-----P-----L---
O.CM.MVP5180	..E-KG	..GPN	..FA-K-----T-QS-L---
O.CM.90CR402	..S-KG	..DOE	..FA-K-----T-QS-L---
AE.CF.90CR402	..SRP-Q	..K-KOP	..P-V-K-----L---
AE.TH.93TH253	..O	..K	..HP-----P-SV-K-----L---
AE.TH.CM240	..E-LSDP-Q	..K	..HP-----P-V-K-----L---
AG.DJ.DJ263	..S-P-A	..K-OG	..P-A-K-----L---
AG.DJ.DJ264	..S-P	..R-OG	..P-A-K-----L---
AG.NG.IBNG	..P-SPQ	..R-G	..P-----L---
AGI.CY.94CY032	..SSL	..R	..K-----L---
AGI.GR.97PVCH	..SSL	..R	..K-----L---
AGI.GR.97PVVY	..SSP-Q	..R	..I-K-----S-L-R---
CPZGAB	..SSP-Q	..R	..I-K-----S-L-R---
CPZANT	..SOBK-EGES	..S	..S-----L---
CPZANT	..OKGIKGF	..E	..P-SY-K-----K-Q---
STVcpzus	..QE	..KQG	..KE-P..FQ-----K-----S-----E

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