

ERRATUM

Comparative Study of Adaptive Molecular Evolution in Different Human Immunodeficiency Virus Groups and Subtypes

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Volume 78, no. 4, p. 1962–1970, 2004. Page 1965, column 2: The final paragraph of Results should read “Finally, the locations of sites implicated in the binding of the envelope glycoprotein to the CD4 receptor molecules (18, 32) and of sites implicated in the receptor switch from CCR5 to CxCR4 tropism (20) are indicated in Fig. 2. Two of the three sites involved in chemokine binding associate with identified positively selected sites, suggesting an expected adaptive evolution at these sites. The finding that some of these sites are apparently not under the influence of positive selection may be due to our comparison of viral sequence data being from several different infected individuals rather than from the viral population of one individual. The CD4 binding sites are not associated with any of the positively selected sites identified as they are presumably under the influence of purifying selection.”

Page 1966: Figure 2 should appear as shown on the following page.

[gp120 vpu]
 HIV-1 M:A MRAMGIQR-NCQ-SL-WRWG--IMILGMI IICSAA-GNLVWTVVYGVFVWKAETTLFCASADAKAYTEVHNVWATHACVPTDFNPQEIINLENVTEKFMN
 HIV-1 M:B MTVKGIQR-NCQ-QW-WIWG--TMLGILMICSAA-NNFVWTVVYGVFVWREATTLFCASADAKAYDEEVHNVWATHACVPTDFNPQEMVLINVTENFMN
 HIV-1 M:C MRATGIQR-NCQ-QW-WIWG--ILGFWMLMICYNM-GNLVWTVVYGVFVWKAETTLFCASADAKAYTEAHNVWATHACVPTDFNPQEMVLINVTEDFNM
 HIV-1 M:D MRVGIQR-NCQ-PL-WKWC--IMLLGMLMITYSAADNLVWTVVYGVFVWKAETTLFCASADAKAYTEAHNVWATHACVPTDFNPQEIINLENVTEKFMN
 HIV-1 O MKA---MEKR---NKKLW-TLYLAMALITPCLSL-RQLYATVYAGVFWEDATPVLEFCASDANI.TSTEKHNWASQACVPTDFNPQEIINLENVTEKFMN
 HIV-2 A M-----CSRNLVLA---SLLASICLIYCE-----QYVTVFYGVFAWRNASIFLFC-----ATKNRDWTGTCQLPNDNDYQEIINLENVTEKFMN
 4

<-----V1----->
 HIV-1 M:A WKNMVEQMHRTDIISLWQSLQPCVKLTPLCVTLNCSQVNV-----VNAT-----NYN-----VNDTIN--MKEEIKNCSEFNMTTELRDRKQKVV
 HIV-1 M:B WKNMVEQMHRTDIISLWQSLQPCVKLTPLCVTLNCSQVNV-----NTNSNTNSSSSTNS-----SSLEQG--KAGEIKNCSEFNITNMNRDVKQKQV
 HIV-1 M:C WKNMVEQMHRTDIISLWQSLQPCVKLTPLCVTLNCSQVNV-----ATHN-----G-----TIDNRT--MGGEIKNCSEFNITTELRDRKQKQV
 HIV-1 M:D WKNMVEQMHRTDIISLWQSLQPCVKLTPLCVTLNCSQVNV-----RNST-----DNN-----STLPTV--KPEEMKNCSEFNITTVVDRKQKQV
 HIV-1 O WKNMVEQMHRTDIISLWQSLQPCVKLTPLCVTLNCSQVNV-----GTTN-----ENLMKCEFNITTVVDRKQKQV
 HIV-2 A WNTVTEQAVEVWSLFETSIKPCVKLTPLCVTLNCSQVNV-----TTMKNESTARP--TTGISNTESILKENSSCISTDTCAGLEQETVDCQFNMTGLERDKKQKQV
 2 45 5553 2

<-----V2----->
 HIV-1 M:A SLFYRLDQVQMN-----SNNNSQVRLINCNTSAITQACPKVSEFPIPIHYCAPAGYAILKCKKKEFNGTGLCKNVSTVQCTHGIKPVVSTQL
 HIV-1 M:B ALFYSLDQVQMN-----KNDTSTVRLINCNTSAITQACPKVSEFPIPIHYCAPAGYAILKCKKKEFNGTGLCKNVSTVQCTHGIKPVVSTQL
 HIV-1 M:C ALFYSLDQVQMN-----GGSVRLINCNTSAITQACPKVSEFPIPIHYCAPAGYAILKCKKKEFNGTGLCKNVSTVQCTHGIKPVVSTQL
 HIV-1 M:D ALFYSLDQVQMN-----EGKNEINTDYTYRLINCNTSAITQACPKVSEFPIPIHYCAPAGYAILKCKKKEFNGTGLCKNVSTVQCTHGIKPVVSTQL
 HIV-1 O ALFYSLDQVQMN-----TSSTNKTNSKMYTLINCNTSAITQACPKVSEFPIPIHYCAPAGYAILKCKKKEFNGTGLCKNVSTVQCTHGIKPVVSTQL
 HIV-2 A ETWYSKDVCESSTSVTSK-----TNWTKCYMHCNNTSVITESCDKHYWDAMRFRVCAPGYALLRCNDTKYGFEPNCTKVVASTCTRMETQTSWT
 4 2 2

<---*---*---V3---*--->
 HIV-1 M:A LL-NGSLAE-SKVMIRSENITNNAKNIIVLQVLESPVMSICRIPNNTRKSVRI-GPCQAFYATGE---IIGNIQAQYCNVNRSEWNEALREVYKLR--TY
 HIV-1 M:B LL-NGSLAE-EVVVKSNDFTNNAKNIIVLQVLESPVMSICRIPNNTRKSVRI-GPCQAFYATGE---IIGDIRQAYCNITKAMNTDQLQVAKLR--EY
 HIV-1 M:C LL-NGSLAE-EETIIRSENITNNAKNIIVLQVLESPVMSICRIPNNTRKSVRI-GPCQAFYATGE---IIGDIRQAYCNITKAMNTDQLQVAKLR--EY
 HIV-1 M:D LL-NGSLAE-EETIIRSENITNNAKNIIVLQVLESPVMSICRIPNNTRKSVRI-GPCQAFYATGE---IIGDIRQAYCNITKAMNTDQLQVAKLR--EY
 HIV-1 O LL-NGSLAE-EETIIRSENITNNAKNIIVLQVLESPVMSICRIPNNTRKSVRI-GPCQAFYATGE---IIGDIRQAYCNITKAMNTDQLQVAKLR--EY
 HIV-2 A LL-NGSLAE-EETIIRSENITNNAKNIIVLQVLESPVMSICRIPNNTRKSVRI-GPCQAFYATGE---IIGDIRQAYCNITKAMNTDQLQVAKLR--EY
 4 2 2 2 2 2 3 3 22

<-----V4----->
 HIV-1 M:A F---NKT--IIFDSS--GGDLEITTHSFCNGGFEFFYCNSTRLENSTW-NDTTSMLN--DTKPN-----DTITPCRIKQIINMWQVGRAMIAPIPK--G
 HIV-1 M:B F---NKT--IIFDSS--GGDLEITTHSFCNGGFEFFYCNSTRLENSTW-NDTTSMLN--DTKPN-----DTITPCRIKQIINMWQVGRAMIAPIPK--G
 HIV-1 M:C F---NKT--IIFDSS--GGDLEITTHSFCNGGFEFFYCNSTRLENSTW-NDTTSMLN--DTKPN-----DTITPCRIKQIINMWQVGRAMIAPIPK--G
 HIV-1 M:D LN---QTK--IIFDSS--GGDLEITTHSFCNGGFEFFYCNSTRLENSTW-NDTTSMLN--DTKPN-----DTITPCRIKQIINMWQVGRAMIAPIPK--G
 HIV-1 O NNT--GSIIN--MTFNHSS--GGDLEITTHSFCNGGFEFFYCNSTRLENSTW-NDTTSMLN--DTKPN-----DTITPCRIKQIINMWQVGRAMIAPIPK--G
 HIV-2 A YR-G-TNKTE-NITFAGPGEQSDPEVAYMTNCRGFEFLYCNSTRLENSTW-NDTTSMLN--DTKPN-----DTITPCRIKQIINMWQVGRAMIAPIPK--G
 3 2 4 2 2 2 2 2 3

<---V5---> gp120 gp41
 HIV-1 M:A VIRCENITGLLITRDGGN--SSVSETEFRPGGDMRDNRSELYKYKVKVIEPLGVAPTKAKRRV---EREKRAVIGAM--FLRFLGAAGSTMGA
 HIV-1 M:B QIKCTSNITGLLITRDGGN--SSVSETEFRPGGDMRDNRSELYKYKVKVIEPLGVAPTKAKRRV---EREKRAVIGAM--FLRFLGAAGSTMGA
 HIV-1 M:C KIKCTSNITGLLITRDGGN--SSVSETEFRPGGDMRDNRSELYKYKVKVIEPLGVAPTKAKRRV---EREKRAVIGAM--FLRFLGAAGSTMGA
 HIV-1 M:D KIKCTSNITGLLITRDGGN--SSVSETEFRPGGDMRDNRSELYKYKVKVIEPLGVAPTKAKRRV---EREKRAVIGAM--FLRFLGAAGSTMGA
 HIV-1 O NLTCSNITGLLITRDGGN--SSVSETEFRPGGDMRDNRSELYKYKVKVIEPLGVAPTKAKRRV---EREKRAVIGAM--FLRFLGAAGSTMGA
 HIV-2 A REGLSNITVTSTIAND---T-YG-NQT---DITSAEVAELRYLELDYKLVIEITPFGFAPTSVKRYSSAPGNRKRQVFLGFLGLFTTAGAAMGA
 2 3

SITLTVQARQLLSGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 HIV-1 M:A SITLTVQARQLLSGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 HIV-1 M:B SITLTVQARQLLSGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 HIV-1 M:C SITLTVQARQLLSGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 HIV-1 M:D SITLTVQARQLLSGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 HIV-1 O ATTLAVQTHLTKGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 HIV-2 A SITLTVQARQLLSGIVQQSNLLRAIEAQHLLKLTWGIKQARVLAERYLRD-QQLLGIWGCSSGKLICTTNPVNSWS--NKSQSEIWNMTWQW
 2

[rev2]
 HIV-1 M:A DKEISNYTHIYELLEESQIQEQEKNEQDALLDQWNLWNPFDITNLWYIKIFIMIVGGLIGLRIVFVLSIINVRVQGYSPFSQTHLP-----NPGG
 HIV-1 M:B ETEINNYTHIYELLEESQIQEQEKNEQDALLDQWNLWNPFDITNLWYIKIFIMIVGGLIGLRIVFVLSIINVRVQGYSPFSQTHLP-----NPGG
 HIV-1 M:C DREISNYTHIYELLEESQIQEQEKNEQDALLDQWNLWNPFDITNLWYIKIFIMIVGGLIGLRIVFVLSIINVRVQGYSPFSQTHLP-----NPGG
 HIV-1 M:D DREISNYTHIYELLEESQIQEQEKNEQDALLDQWNLWNPFDITNLWYIKIFIMIVGGLIGLRIVFVLSIINVRVQGYSPFSQTHLP-----NPGG
 HIV-1 O DRQISNYSSTIYEEIQKAVQEQEKNEQDALLDQWNLWNPFDITNLWYIKIFIMIVGGLIGLRIVFVLSIINVRVQGYSPFSQTHLP-----NPGG
 HIV-2 A EQQIRYLEANISTLEQAQIQEQEKNEQDALLDQWNLWNPFDITNLWYIKIFIMIVGGLIGLRIVFVLSIINVRVQGYSPFSQTHLP-----NPGG
 2 4 3 3 2

rev2]
 HIV-1 M:A -LDRPRRIEPEGGEQDRDRSIRLVGGFTLWDDLRSLCLFSYHRLRDLTIAARTVELLGHSSLKGLRGLWGLKYLGNLLYWRGELRISAINLLDTI
 HIV-1 M:B -PDRPEGIEPEGGEQDRDRSIRLVGGFTLWDDLRSLCLFSYHRLRDLTIAARTVELLGHSSLKGLRGLWGLKYLGNLLYWRGELRISAINLLDTI
 HIV-1 M:C -PDRPEGIEPEGGEQDRDRSIRLVGGFTLWDDLRSLCLFSYHRLRDLTIAARTVELLGHSSLKGLRGLWGLKYLGNLLYWRGELRISAINLLDTI
 HIV-1 M:D -PDRPEGIEPEGGEQDRDRSIRLVGGFTLWDDLRSLCLFSYHRLRDLTIAARTVELLGHSSLKGLRGLWGLKYLGNLLYWRGELRISAINLLDTI
 HIV-1 O -AGTPGRGGGGEGEGRPWIPSPQGFPLLYLTDRTITLWYLLSLSLCLFSYHRLRDLTIAARTVELLGHSSLKGLRGLWGLKYLGNLLYWRGELRISAINLLDTI
 HIV-2 A RGQPPSETEEDVGDSDVGSWPPFIAYIFLIRLIRLIRLIGLYNCRITLISKSPQTLQPIISQGLRALTAIRDWLRPGAAYLQGCWEIQEALQAFARAT
 2

gp41]
 HIV-1 M:A AIIAAGTDRVIEIQRFCAILNIPRRIQGFERALL
 HIV-1 M:B AIIAAGTDRVIEIQRFCAILNIPRRIQGFERALL
 HIV-1 M:C AIIAAGTDRVIEIQRFCAILNIPRRIQGFERALL
 HIV-1 M:D AIIAAGTDRVIEIQRFCAILNIPRRIQGFERALL
 HIV-1 O AVAVANWTDGIIAGIQRTGIRNIPRRIQGFERALL
 HIV-2 A RETLTSVWRNFCSTMGQIGRGLAIIPRRIQGAELALL
 3 2