

SUPPLEMENTARY TABLE S4A. PATIENT AM: INPATIENT MUTATIONS IN HIV gp120 SEQUENCES OF VARIOUS TISSUES AND ORGANS COMPARED TO THE LIVER

| <i>Position in HXB2</i> | 130 | 132 | ^{*a} 136 | ^{*a} 137 | 139 | ^{*a} 141 | ^{*a} 142 | - | 144 | 145 | - | - | - | 146 | 147 | 148 | 151 | 152 | 175 |
|-------------------------|-----|-----|-------------------|-------------------|-----|-------------------|-------------------|---|-----|-----|---|---|---|-----|-----|-----|-----|-----|-----|
| <i>Residue in HXB2</i> | K | T | N | D | N | N | S | - | S | G | - | - | - | R | M | I | K | G | F |
| Liver | D | T | A | I | K | C | S | T | G | . | T | N | H | T | C | . | M | E | . |
| Diaphragm | N | S | V | T | A | S | T | - | V | . | S | G | Q | L | N | . | I | G | . |
| Threshold | D | T | A | I | K | C | S | T | G | . | T | N | H | T | C | . | M | E | . |
| Liver | D | . | . | . | . | . | . | . | . | . | T | . | H | T | . | N | . | . | V |
| Kidney | E | . | . | . | . | . | . | . | . | . | N | . | Q | N | . | S | . | . | L |
| Threshold | D | . | . | . | . | . | . | . | . | . | T | . | H | T | . | N | . | . | V |
| Liver | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Left lymph node | E | . | . | . | . | . | . | . | . | . | N | . | . | N | . | S | . | . | L |
| Threshold | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Liver | . | T | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Right lymph node | . | I | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Threshold | . | T | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Liver | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Liver tumor (1) | E | . | . | . | . | . | . | . | . | . | N | . | . | N | . | S | . | . | L |
| Threshold | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Liver | D | . | . | . | . | . | . | . | G | . | T | . | . | T | . | N | . | . | V |
| Liver tumor (2) | E | . | . | . | . | . | . | . | R | . | N | . | . | N | . | S | . | . | L |
| Threshold | D | . | . | . | . | . | . | G | . | . | T | . | . | T | . | N | . | . | V |
| Liver | . | T | . | . | . | . | . | . | . | . | . | . | H | . | . | N | . | . | . |
| Prostate | . | I | . | . | . | . | . | . | . | . | . | . | Q | . | . | S | . | . | . |
| Threshold | . | T | . | . | . | . | . | . | . | . | . | . | H | . | . | N | . | . | . |
| Liver | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Spleen | E | . | . | . | . | . | . | . | . | . | N | . | . | N | . | S | . | . | L |
| Threshold | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Liver | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |
| Stomach lymphoma | E | . | . | . | . | . | . | . | . | . | N | . | . | N | . | S | . | . | L |
| Threshold | D | . | . | . | . | . | . | . | . | . | T | . | . | T | . | N | . | . | V |

*a=glycosite in HXB2.

Amino acid differences between gp120 in the liver and other tissues were included only if the amino acid was conserved at a frequency of 0.8 in the liver. Dots represent no difference between residues of the liver and the other tissue. Residues not shown are conserved in all tissues. Dashes represent insertions and/or deletions relative to HXB2.

Sequence data were originally reported in Lamers *et al.*¹⁸

SUPPLEMENTARY TABLE S4B. PATIENT AM: INTRAPATIENT MUTATIONS IN HIV GP120 SEQUENCES OF VARIOUS TISSUES AND ORGANS COMPARED TO THE LIVER

| <i>Position in HXB2</i> | 177 | 178 | ^{*b} | ^{*b} | | ^{*a} | - | - | - | ^{*a} | 189 | 190 | - | - | - | - | - | 191 | |
|-------------------------|-----|-----|---------------|---------------|---|---------------|---|---|---|---------------|-----|-----|---|---|---|---|---|-----|---|
| <i>Residue in HXB2</i> | Y | K | L | I | D | D | - | - | - | T | T | S | - | - | - | - | - | Y | |
| Liver | . | K | P | L | N | N | . | Y | V | . | Q | . | . | . | . | . | . | R | . |
| Diaphragm | . | E | L | I | E | D | . | K | - | . | N | . | . | . | . | . | . | - | . |
| Threshold | . | K | P | L | N | N | . | Y | V | . | Q | . | . | . | . | . | . | R | . |
| Liver | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Kidney | Y | . | I | I | D | D | E | . | - | . | S | . | I | N | N | K | T | . | . |
| Threshold | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Liver | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Left lymph node | Y | . | I | I | D | D | E | . | - | . | S | . | I | N | N | K | T | . | . |
| Threshold | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Liver | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Right lymph node | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Threshold | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Liver | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Liver tumor (1) | Y | . | I | I | D | D | E | . | - | . | S | . | I | N | N | K | T | . | . |
| Threshold | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Liver | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Liver tumor (2) | Y | . | I | I | D | D | E | . | - | . | S | . | I | N | N | K | T | . | . |
| Threshold | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Liver | . | . | . | . | . | . | . | . | . | . | Q | . | . | . | . | . | . | . | . |
| Prostate | . | . | . | . | . | . | . | . | . | . | S | . | . | . | . | . | . | . | . |
| Threshold | . | . | . | . | . | . | . | . | . | . | Q | . | . | . | . | . | . | . | . |
| Liver | H | . | P | L | N | N | . | . | V | . | . | . | . | . | . | . | . | . | . |
| Spleen | Y | . | I | I | D | D | . | . | - | . | . | . | . | . | . | . | . | . | . |
| Threshold | H | . | P | L | N | N | . | . | V | . | . | . | . | . | . | . | . | . | . |
| Liver | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |
| Stomach lymphoma | Y | . | I | I | D | D | E | . | - | . | S | . | I | N | N | K | T | . | . |
| Threshold | H | . | P | L | N | N | K | . | V | . | Q | . | - | - | - | - | - | . | . |

*a= glycosite in HXB2, *b=LDI/LDV tripeptide in V2 binds integrin $\alpha_4\beta_7$.

Amino acid differences between gp120 in the liver and other tissues were included only if the amino acid was conserved at a frequency of 0.8 in the liver. Dots represent no difference between residues of the liver and the other tissue. Residues not shown are conserved in all tissues. Dashes represent insertions and/or deletions relative to HXB2.

Sequence data were originally reported in Lamers *et al.*¹⁸

SUPPLEMENTARY TABLE S4C. PATIENT AM: INTRAPATIENT MUTATIONS IN HIV GP120 SEQUENCES OF VARIOUS TISSUES AND ORGANS COMPARED TO THE LIVER

| | | *c | *a | *a | *a | | *d | *d | | *e | *d | *d | | *f | *f | *f | | |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Position in HXB2 | 194 | 198 | 289 | 290 | 291 | 305 | 306 | 307 | 308 | 311 | 312 | 318 | 322 | 328 | 332 | 333 | 334 | 336 |
| Residue in HXB2 | T | T | N | T | S | K | R | I | R | R | G | V | K | Q | N | I | S | A |
| Liver | I | S | . | . | . | K | G | . | R | . | G | . | K | Q | N | L | S | A |
| Diaphragm | R | T | . | . | . | R | S | . | H | . | A | . | E | K | K | I | N | T |
| Threshold | I | S | . | . | . | K | G | . | R | . | G | . | K | Q | N | L | S | A |
| Liver | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Kidney | . | T | D | . | F | . | S | . | H | . | . | . | E | . | . | I | . | . |
| Threshold | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Left lymph node | . | T | D | . | F | . | S | . | H | . | . | . | E | . | . | I | . | . |
| Threshold | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Right lymph node | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Threshold | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Liver | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver tumor (1) | . | T | D | . | F | . | S | . | H | . | . | . | E | . | . | I | . | . |
| Threshold | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver tumor (2) | . | T | D | . | F | . | S | . | H | . | . | . | E | . | . | I | . | . |
| Threshold | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver | . | . | . | . | . | . | . | . | . | I | . | Y | . | . | . | . | . | . |
| Prostate | . | . | . | . | . | . | . | . | . | M | . | I | . | . | . | . | . | . |
| Threshold | . | . | . | . | . | . | . | . | . | I | . | Y | . | . | . | . | . | . |
| Liver | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Spleen | . | T | D | . | F | . | S | . | H | . | . | . | E | . | . | I | . | . |
| Threshold | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Liver | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |
| Stomach lymphoma | . | T | D | . | F | . | S | . | H | . | . | . | E | . | . | I | . | . |
| Threshold | . | S | N | . | S | . | G | . | R | . | . | . | K | . | . | L | . | . |

*a=glycosite in HXB2, *c=CD4 contact residue, *d=coreceptor binding site, *e=GPGR tip of V3 loop, neutralizing antibody (447-52D) binding, coreceptor binding site, *f=monoclonal Ab 2G12 glycosylation binding site.

Amino acid differences between gp120 in the liver and other tissues were included only if the amino acid was conserved at a frequency of 0.8 in the liver. Dots represent no difference between residues of the liver and the other tissue. Residues not shown are conserved in all tissues. Dashes represent insertions and/or deletions relative to HXB2.

Sequence data were originally reported in Lamers *et al.*¹⁸

SUPPLEMENTARY TABLE S4D. PATIENT AM: INTRAPATIENT MUTATIONS IN HIV gp120 SEQUENCES OF VARIOUS TISSUES AND ORGANS COMPARED TO THE LIVER

| <i>Position in HXB2</i> | 340 | 343 | 346 | 347 | 359 | 360 | 362 | *g | *h | | | *a | | *d | *c | | |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|----|----|---|---|----|---|----|----|---|---|
| <i>Residue in HXB2</i> | N | K | A | S | I | I | K | T | N | T | F | N | T | S | S | I | V |
| Liver | T | T | V | K | . | I | K | . | N | S | K | T | . | S | S | . | . |
| Diaphragm | N | K | A | A | . | V | N | . | D | A | S | I | . | K | I | . | . |
| Threshold | T | T | V | K | . | I | K | . | N | S | K | T | . | S | S | . | . |
| Liver | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | I |
| Kidney | N | K | . | Q | - | . | T | M | . | . | N | S | I | . | . | I | M |
| Threshold | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | I |
| Liver | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Left lymph node | N | K | . | Q | - | . | T | M | . | . | N | N | I | . | . | I | . |
| Threshold | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Liver | . | . | . | . | . | . | . | . | . | . | . | T | . | . | . | . | . |
| Right lymph node | . | . | . | . | . | . | . | . | . | . | . | I | . | . | . | . | . |
| Threshold | . | . | . | . | . | . | . | . | . | . | . | T | . | . | . | . | . |
| Liver | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Liver tumor (1) | N | K | . | Q | - | . | T | M | . | . | N | N | I | . | . | I | . |
| Threshold | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Liver | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Liver tumor (2) | N | K | . | Q | - | . | T | M | . | . | N | N | I | . | . | I | . |
| Threshold | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Liver | . | . | . | . | . | . | . | . | . | . | . | T | . | . | . | . | . |
| Prostate | . | . | . | . | . | . | . | . | . | . | . | I | . | . | . | . | . |
| Threshold | . | . | . | . | . | . | . | . | . | . | . | T | . | . | . | . | . |
| Liver | T | T | . | K | . | . | K | R | . | . | K | T | T | . | . | T | . |
| Spleen | N | K | . | Q | . | . | T | M | . | . | N | N | I | . | . | I | . |
| Threshold | T | T | . | K | . | . | K | R | . | . | K | T | T | . | . | T | . |
| Liver | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |
| Stomach lymphoma | N | K | . | Q | - | . | T | M | . | . | N | N | I | . | . | I | . |
| Threshold | T | T | . | K | I | . | K | R | . | . | K | T | T | . | . | T | . |

*a=glycosite in HXB2, *c=CD4 contact residue, *d=coreceptor (CCR5/CXCR4) binding site, *g=CD4 binding loop: SSGGDPEIVTH, *h=lectin DC-SIGN binding site (N386-T388), glycosite, monoclonal Ab 2G12 glycosylation binding site (N386-T388).

Amino acid differences between gp120 in the liver and other tissues were included only if the amino acid was conserved at a frequency of 0.8 in the liver. Dots represent no difference between residues of the liver and the other tissue. Residues not shown are conserved in all tissues. Dashes represent insertions and/or deletions relative to HXB2.

Sequence data were originally reported in Lamers *et al.*¹⁸