

Nucleotide sequences of the cDNAs encoding the V-regions of H- and L-chains of a human monoclonal antibody specific to HIV-1 – gp41

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The human monoclonal antibody secreted from the cell line 3D6 (IgG1, kappa) reacts specifically with an immunodominant epitope located on gp41 of Human Immunodeficiency Virus-1 (HIV-1) (1, 2). We have constructed a cDNA library from the mRNA of 3D6 and cloned it in the plasmid pUC19. Screening with probes specific to the constant regions of the heavy and the light chain respectively, followed by restriction analysis and sequencing, yielded full length clones of the heavy and the light chain, respectively.

The nucleotide sequences of the variable regions and their deduced amino acid sequences are shown in Fig. 1.

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ATG GAG TTG GGA CTG AGC TGG ATT TTC CTT TTG GCT ATT TTA AAA GGT GTC CAG
M E L G G L S W I F L L A I L K G V Q
TGT|GAA GTG CAG CTG GTG GAG TCT GGG GGA GGC TTG GTA CAG CCT GGC AGG TCC
C | E V Q L V E S G G G L V Q P G R S
CTG AGA CTC TCC TGT GCA GCC TCT GGA TTC ACC TTT AAT GAT TAT GCC ATG CAC
L R L S C A A S G F T F N D Y A M H
TGG GTC CGG CAA GCT CCA GGG AAG GGC CTG GAG TGG GTC TCA GGT ATA AGT TGG
W V R Q A P G K G L E W V S G I S W
GAT AGT AGT AGT ATA GGC TAT GCG GAC TCT GTG AAG GGC CGA TTC ACC ATC TCC
D S S S I G Y A D S V K G R F T I S
AGA GAC AAC GCC AAG AAC TCC CTG TAT CTG CAA ATG AAC AGT CTG AGA GGT GAG
R D N A K N S L Y L Q M N S L R A E
GAC ATG GCC TTA TAT TAC TGT GTA AAA GGC AGA GAT TAC TAT GAT AGT GGT GGT
D M A L Y Y C V K G R D Y Y D S G G
TAT TTC ACG GTT GCT TTT GAT ATC TGG GGC CAA GGG ACA ATG GTC ACC GTC TCT
Y F T V A F D I W G Q G T M V T V S
TCA
S
ATG GAC ATG AGG GTC CCC GCT CAG CTC CTG GGG CTC CTG CTG CTC TGG CTC CCA
M D M R V P A Q L L G L L L L L W L P
GGT GCC AAA TGT|GAC ATC CAG ATG ACC CAG TCT CCT TCC ACC CTG TCT GCA TCT
G A K C | D I Q M T Q S P S T L S A S
GTA GGA GAC AGA GTC ACC ATC ACT TGC CGG GCC AGT CAG AGT ATT AGT AGG TGG
V G D R V T I T C R A S Q S I S R W
TTG GCC TGG TAT CAG CAG AAA CCA GGG AAA GTC CCT AAG CTC CTG ATC TAT AAG
L A W Y Q Q K P G K V P K L L I Y K
GCA TCT AGT TTA GAA AGT GGG GTC CCA TCA AGG TTC AGC GGC AGT GGA TCT GGG
A S S L E S G V P S R F S G S G S G
ACA GAA TTC ACT CTC ACC ATC AGC AGC CTG CAG CCT GAT GAT TTT GCA ACT TAT
T E F T L T I S S L Q P D D F A T Y
TAC TGC CAA CAG TAT AAT AGT TAT TCT TTC GGC CCT GGG ACC AAA GTG GAT ATC
Y C Q Q Y N S Y S F G P G T K V D I
AAA
K

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Fig. 1. Nucleotide sequences and deduced amino acid sequences of the cDNAs encoding the V-regions of the antibody 3D6. The border between the signal peptide and the mature protein is marked by a vertical line. (A) Heavy chain variable region, (B) Light chain variable region.