CLAIMS

1. An isolated anti-CXCR4 antibody, or one of its functional fragments, said functional fragment being selected among the fragments Fv, Fab, (Fab')2, Fab', scFv, scFv-Fc and diabodies ~~or derivatives~~, characterized in that it comprises:

   - a light chain comprising CDR-L1, CDR-L2 and CDR-L3 comprising respectively the amino acid sequence SEQ ID Nos. 1, 2 and 3; and a heavy chain comprising CDR-H1, CDR-H2 and CDR-H3 comprising respectively the amino acid sequence SEQ ID Nos. 4, 5 and 6; or

   - a light chain comprising CDR-L1, CDR-L2 and CDR-L3 comprising respectively the amino acid sequence SEQ ID Nos. 1, 2 and 30; and a heavy chain comprising CDR-H1, CDR-H2 and CDR-H3 comprising respectively the amino acid sequence SEQ ID Nos. 31, 32 and 33.

2. The antibody of claim 1, or a ~~derived compound or~~functional fragment of same, characterized in that said antibody is:

   - an antibody comprising ~~it comprises~~ a light chain comprising the amino acid sequence SEQ ID No. 7 and a heavy chain comprising the amino acid sequence SEQ ID No. 8 or
   - an antibody comprising a light chain comprising the amino acid sequence SEQ ID No. 34, ~~and a heavy chain comprising the amino acid sequence SEQ ID No. 8~~ and a heavy chain comprising ~~or~~ the amino acid sequence SEQ ID No. 35.

3. The antibody of claim 1, or a ~~derived compound or~~functional fragment of same, characterized in that it is a chimeric antibody and in that it comprises a heavy chain of sequence selected from the group consisting of SEQ ID Nos. 56, 57 or 58, and a light chain of sequence SEQ ID No. 59.

4. The antibody of claim 1, characterized in that it is a humanized antibody and in that it comprises a heavy chain variable region of sequence consisting of SEQ ID No. 64, and a light chain variable region of sequence selected from the group consisting of SEQ ID Nos. 65, 66, 82 or 83.

5. The antibody of claim 1, characterized in that it is a humanized antibody and in that it comprises a humanized antibody, or a ~~derived compound or~~functional fragment of same, comprising a heavy chain of sequence selected from the group consisting of SEQ ID Nos. 67, 68 or 69, and a light chain of sequence selected from the group consisting of SEQ ID Nos. 70, 71, 84 or 85.

6. The antibody of claim 1, characterized in that said functional fragment consists of a fragment scFv, said scFv comprising the amino acid sequence SEQ ID No. 54.

7. An isolated nucleic acid, characterized in that it is a nucleic acid, DNA or RNA, coding for an antibody, or one of its functional fragments, as claimed in one of claims 1 to 6~~chosen from the following nucleic acids: ~~.

~~a) a nucleic acid, DNA or RNA, coding for an antibody, or one of its functional fragments or derivatives, as claimed in one of claims to ;~~

~~b) a nucleic acid comprising a DNA sequence selecting from the group of CDRs sequences consisting of SEQ ID Nos. 14 to 19 and 41 to 45;~~

~~c) a nucleic acid comprising a DNA sequence selecting from the group of heavy and light variable domains sequences consisting of SEQ ID Nos. 20, 21, 46, 47, 72, 73, 74, 86 and 87;~~

~~d) a nucleic acid comprising a DNA sequence selecting from the group of heavy and light chains sequences consisting of SEQ ID Nos. 60 to 63, 75 to 79, 88 and 89;~~

~~e) a nucleic acid comprising a DNA sequence consisting of SEQ ID No. 55;~~

~~f) the corresponding RNA nucleic acids of the nucleic acids as defined in b), c), d) or e);~~

~~g) the complementary nucleic acids of the nucleic acids as defined in a), b), c), d) and e); and~~

~~h) a nucleic acid of at least 18 nucleotides capable of hybridizing under conditions of high stringency with at least one of the CDRs of sequence SEQ ID Nos. 14 to 19 and 41 to 45.~~

8. A vector comprising a nucleic acid as claimed in claim 7.

9. A host cell comprising a vector as claimed in claim 8.

10. A process for production of an antibody, or one of its functional fragments ~~or derivatives~~, as claimed in one of claims 1 to 6 characterized in that it comprises the following stages:

a) culture in a medium and appropriate culture conditions of a cell as claimed in claim 9; and

b) the recovery of said antibodies, or one of their functional fragments ~~or derivatives~~, thus produced starting from the culture medium or said cultured cells.

11. The antibody of claims 1 to 6 as a medicament.

12. The antibody, or one of its functional fragments ~~or derivatives~~, of claims 1 to 6 characterized in that it inhibits HIV-1 KON primary isolate replication in PBMC with an IC_{90} of at least 5 μg/ml, preferably at least 10 μg/ml.

13. A pharmaceutical composition comprising by way of active principle a compound consisting of an antibody, or one of its functional fragments ~~or derivatives~~, as claimed in one of claims 1 to 6 and 12.

14. Use of ~~T~~the composition as claimed in claim 13 in the manufacture of a medicament for the prevention or for the treatment of HIV infection.

15. The ~~composition~~ use as claimed in claim 14, characterized in that said HIV infection is a X4-tropic HIV infection, and/or a X4/R5-tropic HIV infection.

16. The ~~composition~~ use according to claims 13 to 15, characterized in that ~~it~~ the composition comprises at least a second anti-HIV compound selected in the group consisting of antiretroviral drugs such as HIV protease inhibitors (PI), nucleoside /nucleotide HIV reverse-

transcriptase inhibitors (NRTI/NtRTI), non-nucleoside HIV reverse-transcriptase inhibitors (NNRTI), HIV entry inhibitors, HIV integrase inhibitors.

17. The ~~composition~~ use according to claim 15 or 16, characterized in that said at least second anti-HIV compound is the Maraviroc.

18. Process for the screening and/or the identification of molecules as CXCR4 antagonist antiviral agents comprising the steps of:

a) selecting cells expressing CXCR4,

b) incubating said cells with an antibody, or one of its functional fragments ~~or derivatives~~, of claims 1 to 6 or 12, and

c) evaluating the tested molecules for their potential inhibition of the binding between the antibody, or one of its functional fragments ~~or derivatives~~, to CXCR4, and

d) selecting molecules capable of said inhibition.

19. The composition of claim 13 for use in therapy.