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Identification of human monoclonal antibodies specific for CCR5 from an antibody library derived from HIV-infected long-term non-progressors

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It has been reported that about one quarter of long-term nonprogressors had anti-CCR5 antibodies and such antibodies were not found in disease progressing HIV-1 positive individuals [1]. To identify such antibodies we panned an HIV immune library constructed from bone marrow of three long-term nonprogressors against a synthetic sulfated N-terminal CCR5 peptide (2–15) (R5Nt). Twenty anti-CCR5 monoclonal antibodies were selected that bind to the R5Nt and cell-associated CCR5. Sequence analysis revealed that eighteen clones have VHs that were derived from the same germline sequence. Preliminary data showed that these antibodies inhibited primary HIV-1 isolates from clade B and E as tested in a pseudovirus assay. Identification of these anti-CCR5 human monoclonal antibodies indicates possible contribution to mechanisms determining the slow progression or lack of disease in long-term nonprogressors. The selected anti-CCR5 antibodies may have potentials as therapeutics and/or prophylactics in combination with other HIV-1 neutralizing antibodies and antiretroviral drugs.

References

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