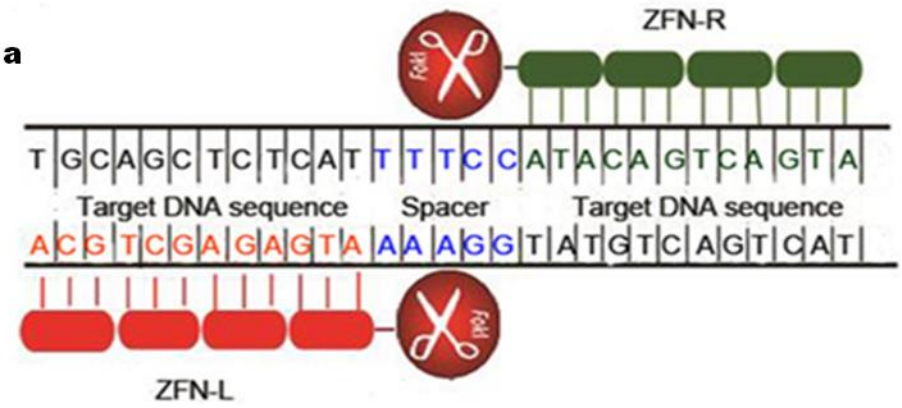
Supplementary materials:

Sample	Viral Load (copies/ml)	Therapy	CD4/CD8 (/mm^3)	Sex
24	<20	25 years	521/1395	M
29	66000	Naive	313/694	M
30	110	1 year	391/581	M

Table S1: Clinical information on HIV seropositive subjects

a



b

c

ZFN-L:

MDYKDHDGDYKDHDIDYKDDDDKMAPKKKRKVGIHGVPAAMAERPFQCRIC
MRNFSTSGHLSRHIRTHTGEKPFACDICGRKFAQSGDLTRHTKIHTGSQKPFQCR
ICMRNFSQSSDLSRHIRTHTGEKPFACDICGRKFAQSTHRNAHTKIHTGEKPFQC
RICMRKFARSDALTQHTKIHLRGSQLVKSELEEKKSELRHKLKYVPHEYIELIEIARN
STQDRILEMKVMEFFMKVYGYRGKHLGGSRKPDGAIYTVGSPIDYGVIVDTKAYS
GGYNLPIGQADEMERYVEENQTRNKHLNPNEWWKVYPSSVTEFKFLFVSGHFK
GNYKAQLTRLNHITNCNGAVLSVEELLIGGEMIKAGTLTLEEVRRKFNNGEINF

ZFN-R:

MRSDYKDHDGDYKDHDIDYKDDDDKMAPKKKRKVGIHGVPAAMAERPFQCRI
CMRNFSQSGSLTRHIRTHTGEKPFACDICGRKFAQSADRTKHTKIHTGSQKPFQC
RICMRNFSRSDNLSEHIRTHTGEKPFACDICGRKFATRSPLRNHTKIHLRGSQLVK
SELEEKKSELRHKLKYVPHEYIELIEIARNSTQDRILEMKVMEFFMKVYGYRGKHL
GGSRKPDGAIYTVGSPIDYGVIVDTKAYSGGYNLPIGQADEMQRYVKENQTRNK
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d

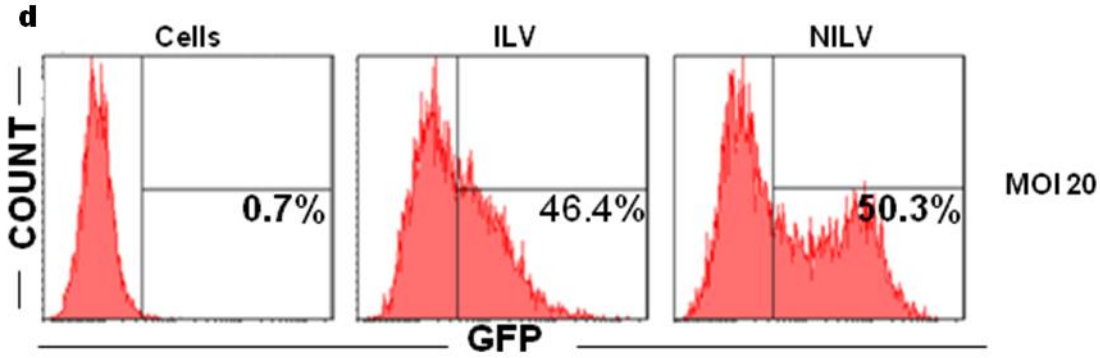


Figure S1: Generation of non-integrating lentivirus encoding ZFNs for CCR5 gene editing. A) Schematic of zinc finger nuclease arms targeting CCR5 gene. ZFN was designed to target 12 bp of CCR5 sequence (shown in red for left arm and green for right arm), separated by 5 bp (shown in blue). **B)** To generate the lentiviral vector, both arms of ZFN were connected via a FDMV 2A sequence and cloned into pLVX-ZsGreen vector as detailed in Methods. **C)** sequence for ZFNs targeting CCR5. DNA binding domain shown in red, and Fok I cleavage domain shown in black. **D)** 293 T cells were transduced with integrating or nonintegrating lentivirus at a MOI of 20 and examined for ZsGreen expression by flow cytometry.

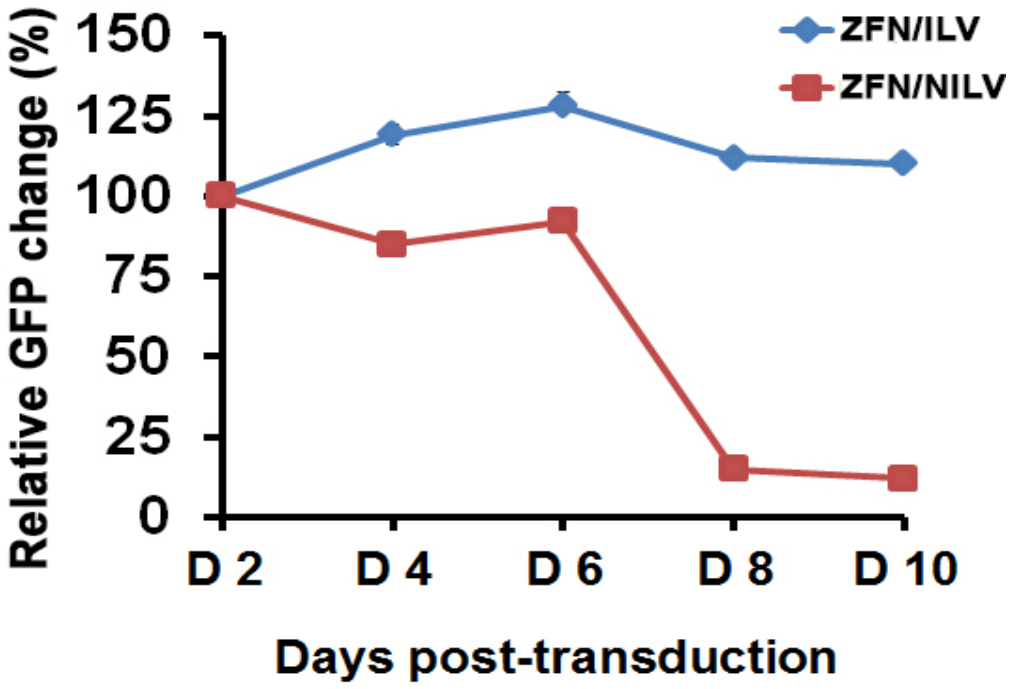


Fig S2: ZsGreen expression over time after transduction of 293 T cells with non-integrating (red) or wild type integrating (blue) lentiviruses..

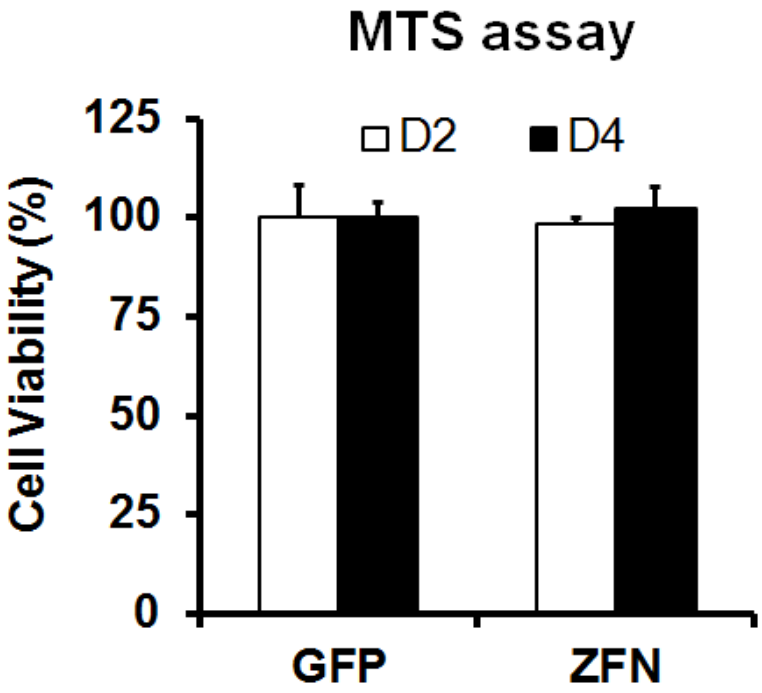
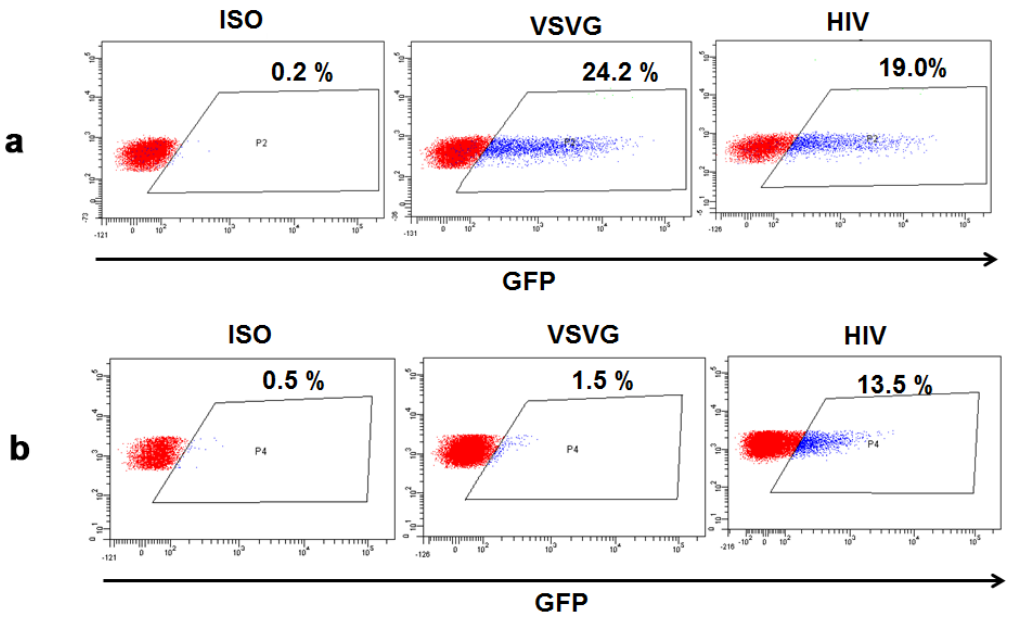


Fig S3: MTS assay to test the toxicity of CCR5-ZFNs non-integrating lentivirus. After transduction of 293 T cells with CCR5-ZFNs NILV, cell viability was evaluated by MTS assay on day 2 and day 4 of culture. Empty vector (GFP only) was used as control.



Supplementary Fig 4: Transduction efficiencies of CCR5-ZFN-expressing NILV pseudotyped with HIV envelope or VSV-G envelope in both activated and resting CD4+ T cells, 30 ng of p24 was used to transduce 1 x 10^5 cells. (**a**) Activated cells. (**b**) Resting CD4+ T cells.

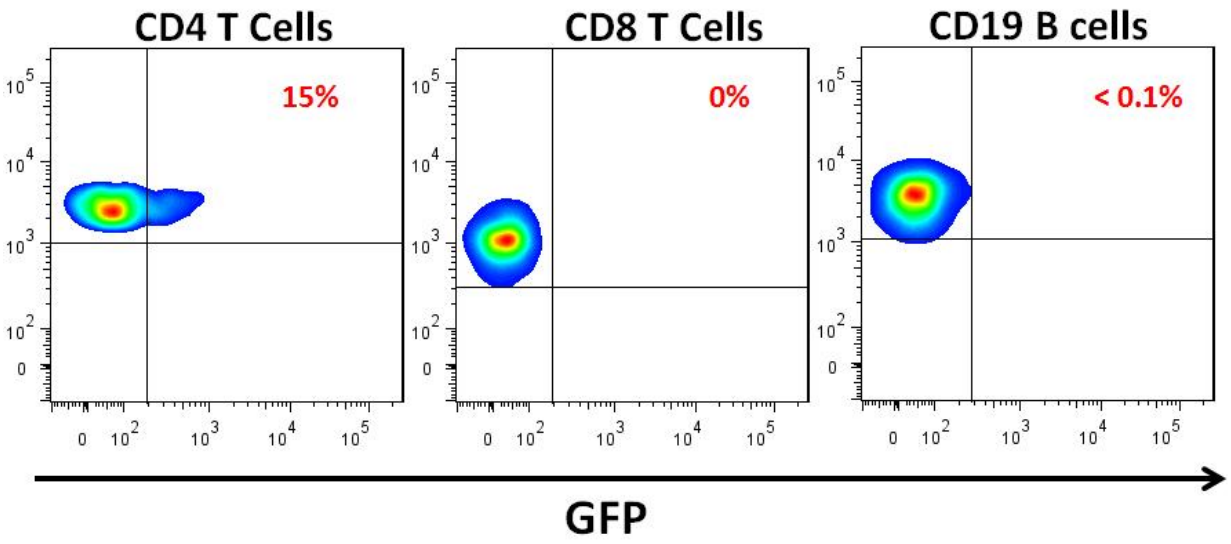


Fig S5: Selective transduction CD4+ T cells with HIV envelope pseudotyped NILV. Unfractionated PBMCs transduced with ZFN-expressing NILV (30 ng of p24 for 1 x 10^5 cells) were cultured for 48 h and evaluated for GFP expression on gated populations stained for indicated markers.