

**Supplementary Table S2. List of human antibodies used for flow cytometry**

<i>Antibody</i>	<i>Fluorochrome</i>	<i>Dilution</i>	<i>Clone</i>	<i>Company</i>	<i>Code</i>
hCD33	BV421	1:25	WM53	BD Biosciences	562854
Anti-human FcR blocking		1:50		Miltenyi Biotec	120-000-442
Mouse Fc block		1:100	2.4G2	BD Pharmigen	553142
hCD45	APCh7	1:25	2D1	BD Biosciences	641417
hCD19	PE	1:25	SJ25C1	BD Biosciences	345789
hCD33	PeCy7	1:25	P67.6	BD Biosciences	333952
hCD3	APC	1:25	UCHT1	BD Biosciences	555335
hCD13	BV	1:25	WM15	BD Biosciences	562596
hCD34	PeCy7	1:25	8G12	BD Biosciences	348811
hCD38	V450	1:25	HB7	BD Biosciences	646851
hCD90	APC	1:25	5E10	BD Biosciences	559869
hCD133/2	PE	1:25	293C3	Miltenyi Biotec	130-090-853
hCD45RA	PE	1:25		Miltenyi Biotec	130-092-248
hKi67	PE	1:10	B56	BD	51-36525X
IgG1 isotype control	PE	1:10	MOPC-21	BD	51-35405X

**Supplementary Table S3. Summary of samples used for integration site analysis and number of integration sites retrieved for each sample**

<i>Vector</i>	<i>Treatment</i>	<i>MOI</i>	<i>In vivo or in vitro</i>	<i>Sample ID</i>	<i>ng DNA analyzed</i>	<i>Number of IS</i>
SINLV-GFP	CsA	10	<i>In vitro</i>	CSA-CD34-CP-03	500	1446
			<i>In vivo</i>	CSA-CP-07	167	112
		100	<i>In vivo</i>	CSA-DC-04	167	267
			<i>In vivo</i>	CSA-DC-05	167	78
			<i>In vivo</i>	CSA-DC-06	333	172
IDUA-LV	DMSO	100	<i>In vivo</i>	CSA-CP-19-I	333	13
			<i>In vivo</i>	CSA-CP20-I	500	29
SINLV-GFP	DMSO	10	<i>In vitro</i>	DMSO-CD34-CP-01	167	291
			<i>In vivo</i>	D-CP-04	167	33
		100	<i>In vivo</i>	D-DC-01	167	121
			<i>In vivo</i>	D-DC-02	333	90
			<i>In vivo</i>	D-DC-03	333	82
IDUA-LV	DMSO	100	<i>In vivo</i>	D-CP17-I	100	18
			<i>In vivo</i>	D-CP18-I	100	10

*in vitro*, integration sites were retrieved from *in vitro* cultured HSPC after transduction with the indicated vector (2 weeks in culture); *in vivo*, integration sites were retrieved from BM cells from transplanted mice at 17 weeks after transplant; ng DNA analyzed, PCR reactions were performed on variable amounts of DNA, depending on availability.