SUPPLEMENTARY INFORMATION

Sulfonate-ended carbosilane dendrimers with a flexible scaffold cause inactivation of HIV-1 virions and gp120 shedding

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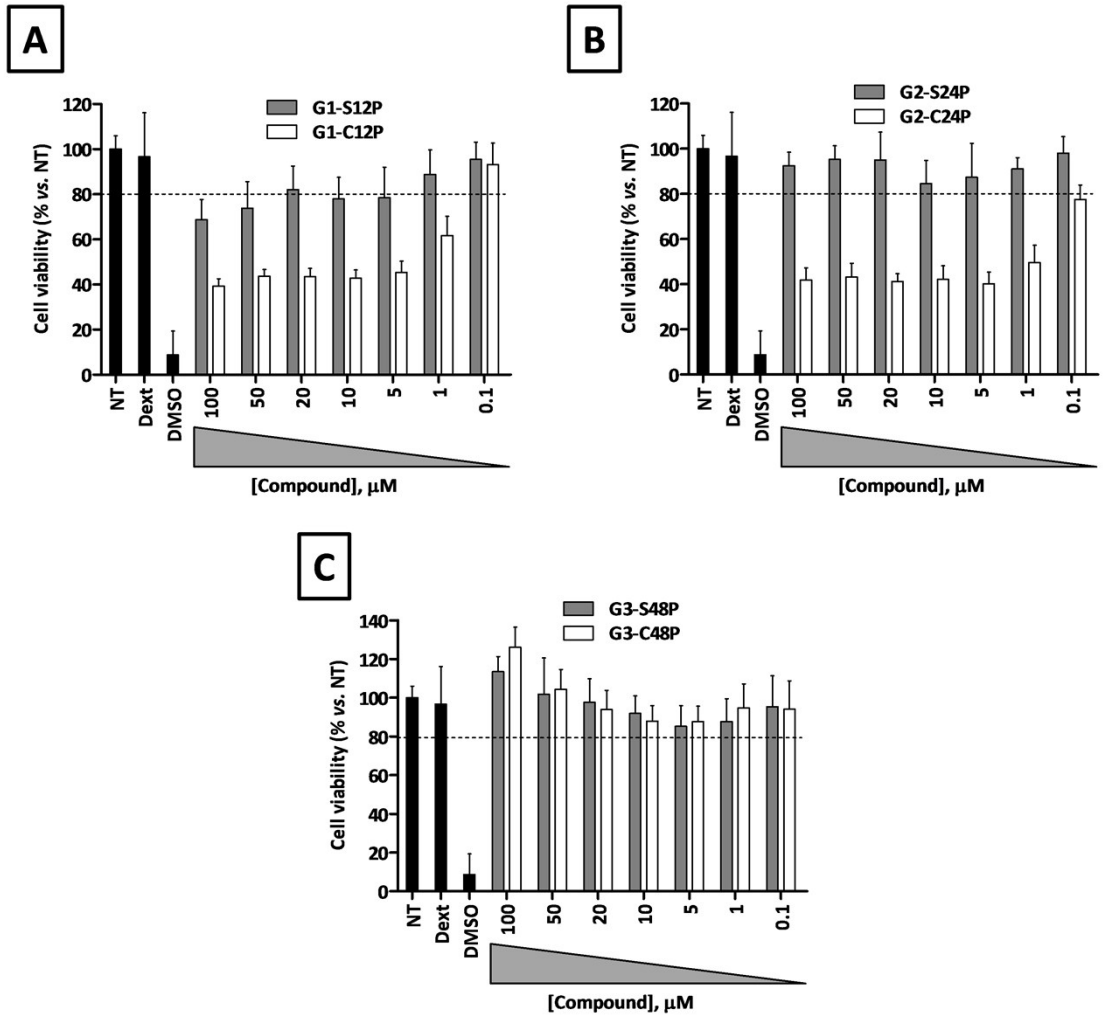
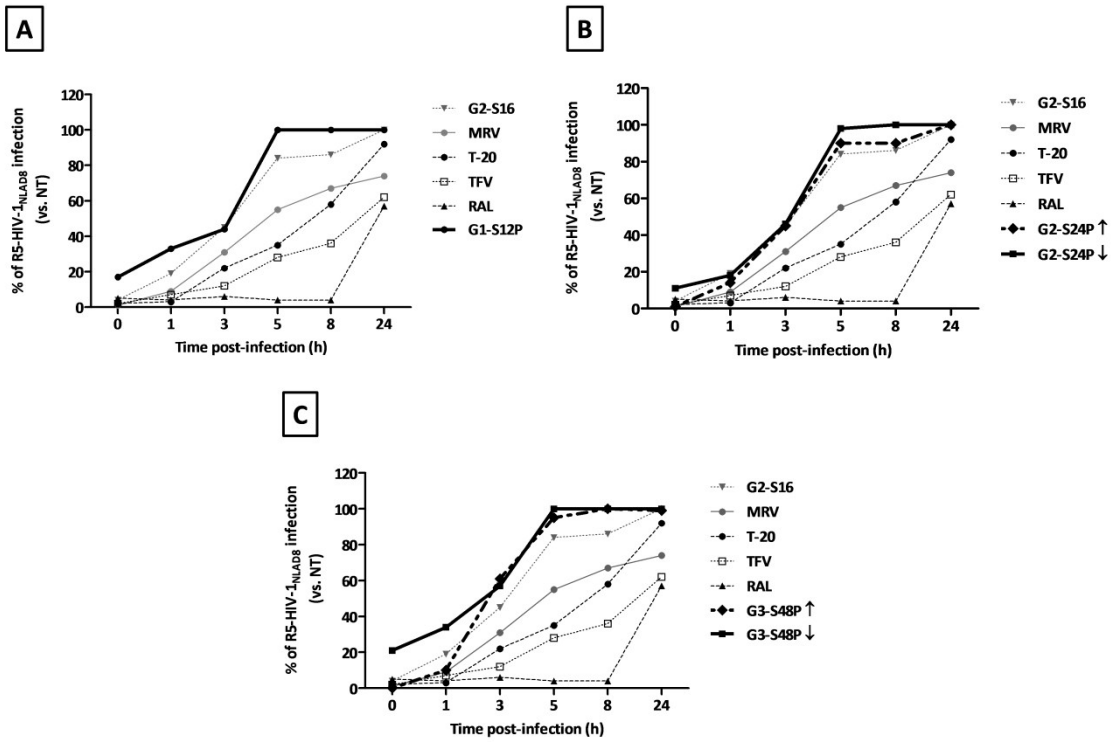
Supplementary Table 1 Chemical and structural characteristics of polyanionic carbosilane dendrimers with a polyphenolic core

Dendrimer	Molecular Formula	Mw (g/mol)[a]	G[b]	SG[c]	NSG[d]
G1-S12P	$C_{93}H_{192}N_6Na_{12}O_{39}S_{12}Si_9$	2,932.0	1	Sulfonate	12
G2-S24P	$C_{189}H_{402}N_{12}Na_{24}O_{75}S_{24}Si_{21}$	5,954.4	2	Sulfonate	24
G3-S48P	$C_{381}H_{822}N_{24}Na_{48}O_{147}S_{48}Si_{45}$	11,999.2	3	Sulfonate	48
G1-C12P	$C_{105}H_{192}N_6Na_{12}O_{27}Si_9$	2,499.3	1	Carboxylate	12
G2-C24P	$C_{213}H_{402}N_{12}Na_{24}O_{51}Si_{21}$	5,084.2	2	Carboxylate	24
G3-C48P	$C_{431}H_{826}N_{24}Na_{48}O_{99}Si_{45}$	10,296.6	3	Carboxylate	48

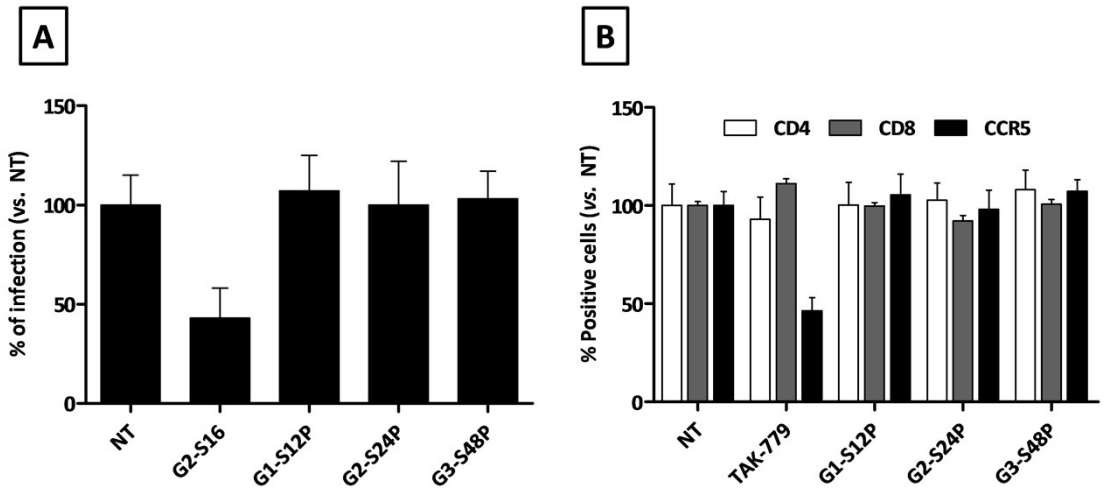
[a] Mw: Molecular weight
[b] G: Number of generations according to the number of repeated layers with branching units from silicon atoms
[c] SG: Surface groups
[d] NSG: Number of surface groups



Supplementary Figure 1 Cytotoxicity associated to polyanionic carbosilane dendrimers in TZM.bl cells at 48 h post-loading using MTT assay. The cells were loaded with increased concentrations of dendrimers (ranged from 0.1 to 100 µM) from **(A)** first, **(B)** second or **(C)** third generation, or treated with 10 µM dextran (innocuous control) or 10% of DMSO (control of cell death). The percent of cell viability was calculated as optical density of treated condition/non-treated control (NT) x 100. The 80% of viability was set as limit of toxicity. Data are represented as mean ± SD of three experiments performed in triplicate. Abbreviations: Dext = dextran; DMSO = dymethyl sulfoxide.



Supplementary Figure 2 Time-of-drug-addition in the HIV-1 lifecycle of selected polyanionic carbosilane dendrimers. **(A)** G1-S12P (1 μM), **(B)** G2-S24P at high (100 μM, ↑) and low (0.1 μM, ↓) concentrations, **(C)** G3-S48P at high (100 μM, ↑) and low (0.1 μM, ↓) concentrations, or G2-S16 (10 μM), MRV (1 μM), T-20 (20 μM), TFV (1 μM) or RAL (0.1 μM) as controls were added upon R5-HIV-1_{NLAD8} infection (20 ng p24/10^6 cells) or at various points post-infection. Luciferase activity was measured at 48 h post-infection *vs.* non-treated control. Data represent the mean ± SD of one experiment performed in duplicate. Abbreviations: MRV = maraviroc; RAL = raltegravir; T-20 = enfuvirtide; TFV = tenofovir.



Supplementary Figure 3 Cell-drug interactions and interaction of selected polyanionic carbosilane dendrimers with cellular surface markers. **(A)** TZM.bl cells were exposed to G1-S12P (1 μM), G2-S24P (0.1 μM) or G3-S48P (0.1 μM), or G2-S16 (10 μM) as a control for 1 h, extensively washed and infected with R5-HIV-1_{NLAD8} (20 ng p24/10^6 cells). Luciferase activity was measured at 48 h post-infection *vs.* non-treated control (NT). **(B)** PHA-activated PBMCs were exposed to G1-S12P (1 μM), G2-S24P or G3-S48P (0.1 μM), or TAK-779 (0.1 μM) as a CCR5 antagonist control for 24 h, and levels of CD4, CD8, and CCR5 at the cellular surface were followed by flow cytometry *vs.* NT. Data represent the mean ± SD of three individual experiments performed in triplicate. Abbreviations: PBMCs = peripheral blood mononuclear cells; PHA = phytohemagglutinin.