Supplementary Information

Biocompatible metal-organic frameworks as promising platforms to eradicate HIV reservoirs *ex-vivo* in people living with HIV

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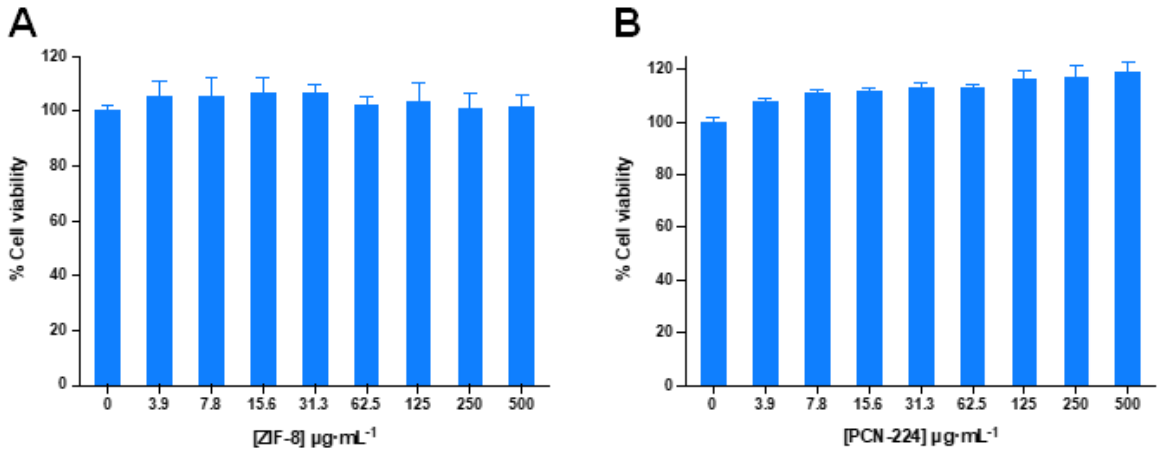

Fig. S1 Cell viability values by LDH assay in the presence of different MOF concentrations for 6 h in PBMCs: **A**) ZIF-8 and **B**) PCN-224. Each MOF concentration was measured in triplicates and the experiments were repeated thrice independently. 1X PBS (MOF, 0 g mL^{-1}) was used as negative control. Error bars represent standard deviation values. 2way ANOVA Dunnett's multiple comparisons test was applied comparing different concentration of MOF concentrations with the negative control. No significant difference was found between the different concentration of MOF concentrations and the negative control ($P > 0.05$).

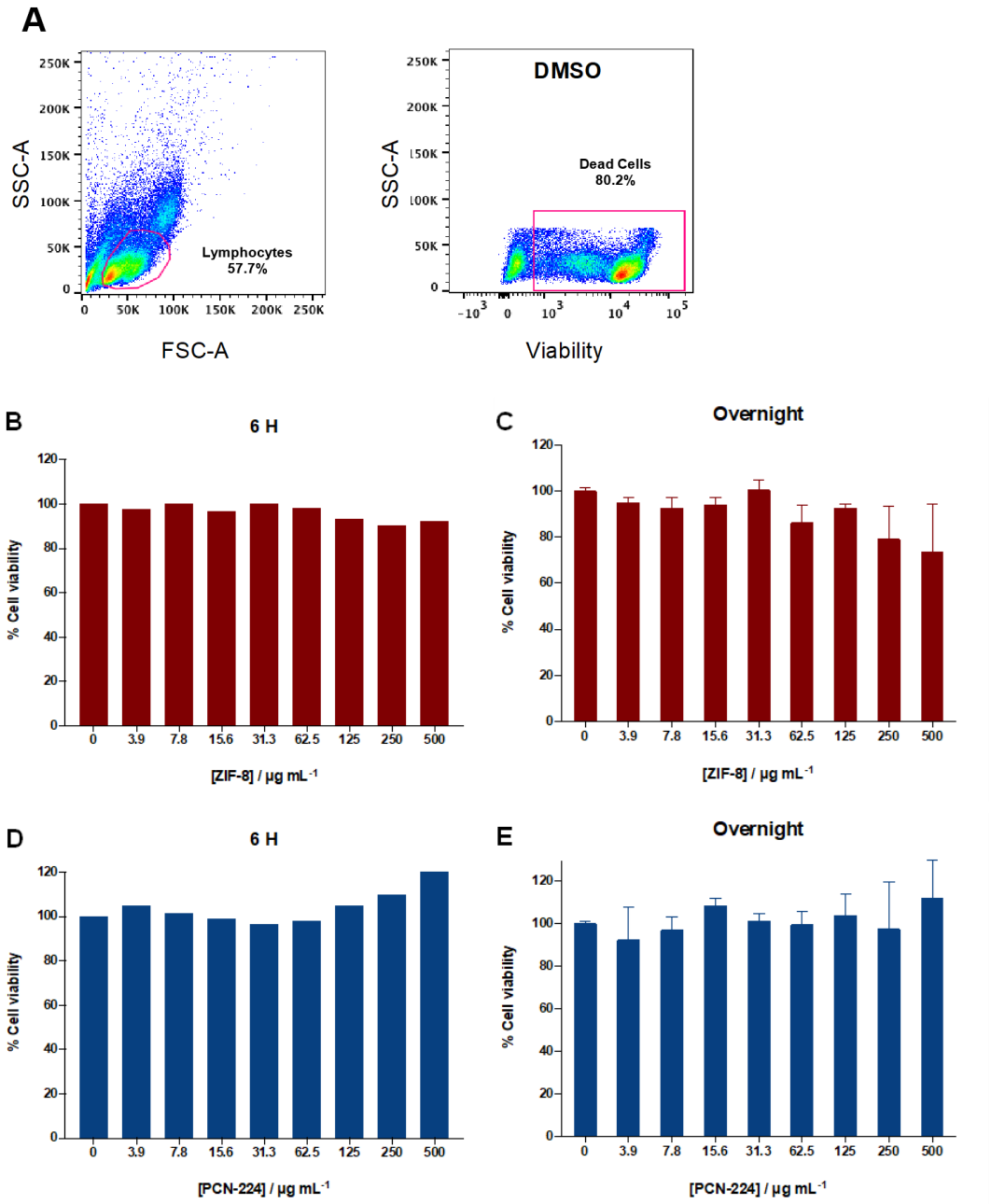

Fig. S2 PBMCs viability (%) by flow cytometry in the presence of different MOF concentrations for 6 h (B, D) and overnight incubation (C, E). **A)** Pseudocolor dot plots showing the gating strategy used for the identification of dead cells in a representative sample. Mononuclear cells were selected according to their size (FSC-A) and complexity (SSC-A). Dead cells after 6 h treatment with DMSO as positive control were selected using a viability marker, aqua-fluorescent reactive dye. **B-E**) Bars graph show the percentage of viable cells after the treatment with different MOF concentrations of ZIF-8 or PCN-224 for 6 h (**B** or **D**) and overnight (**C** or **E**). 1X PBS (MOF, 0 µg mL^{-1}) was used as negative control. The experiments were repeated twice independently for overnight (**C** or **E**). Error bars represent standard deviation values. 2way ANOVA Dunnett's multiple comparisons test was applied. No significant difference was found between the different concentration of MOF concentrations and the negative control ($P > 0.05$).

Table S1 % Antiretroviral agents and TLR agonists released from ZIF-8 and PCN-224

		cARTs (%)					TLR agonists (%)	
MOF	**pH**		**TFV**	**FTC**	**NVP**	**BIC**	**TLR-7**	**TLR-9**
ZIF-8	5.5	**cART-1**	90±2	3.5±1.5	98±5	---	1.3±0.5	93±5
		cART-2	98±5	6.4±0.4	---	1.2±0.2		
	7.4	**cART-1**	93±7	2.3±1.3	99±7	---	3.0±0.3	98±2
		cART-2	95±9	5.3±0.3	---	2.3±0.7		
PCN-224	2.2	**cART-1**	4.8±1.9	8.0±2.8	9.1±1.4	---	3.9±0.2	100±7
		cART-2	11±1	14±1	---	5.2±0.3		
	5.5	**cART-1**	7.0±1.9	7.1±1.0	5.6±1.1	---	11±1	100±5
		cART-2	9.1±0.2	9.9±1.0	---	3.6±0.7		
	7.4	**cART-1**	3.7±1.3	8.6±1.7	7.2±1.7	---	~0.0	~0.0
		cART-2	3.7±1.2	11±1	---	8.3±1.7		

Values in this table are given as mean value ± standard deviation. The experiments were repeated thrice independently. cART-1 and -2 represent the combined antiretroviral therapy TFV + FTC + NVP and TFV + FTC + BIC, respectively.

Table S2 Release rate constant for TLR agonists in ZIF-8 and PCN-224 at different pH values

	k / days^{-1}			
	TLR-7 agonist		**TLR-9 agonist**	
pH	**ZIF-8**	**PCN-224**	**ZIF-8**	**PCN-224**
2.2	---	0.042±0.015	---	0.21±0.05
5.5	0.21±0.02	0.059±0.014	0.30±0.09	0.59±0.01
7.4	0.36±0.08	---	1.02±0.10	---

Values in this table are given as mean value ± standard deviation.
The experiments were repeated thrice independently.

Table S3 Instrumental parameters

	TFV	FTC	NVP	BIC
Retention time (min)	1.9	3.4	5.2	7.2
Ionization (ESI)	Positive			
***m/z* (Da), $[M+H]^+$**	288.0999	130.0565	267.1357	450.1329
Capillary (kV)	2.0			
Sampling cone (V)	40	**Source Offset**	80	
Source T (ºC)	100	**Desolvation T (ºC)**	400	
Scan range	50-800 Da	**Scan time (s)**	0.8/ centroid	
Cone gas (L/h) N_2	30	**Desolvation gas (L/h) N_2**	600	
Instrument	Acquity UPLC-Xevo G2-S Q-TOF (Waters)			

Table S4 Analytical Validation Data

Analyte	Linear range ($\mu g \cdot L^{-1}$)	(R^2)	LOD ($\mu g \cdot L^{-1}$)	LOQ ($\mu g \cdot L^{-1}$)	Rep/IP (%RSD)		
					5*	50	250
TNF	1.0-500	0.9968	0.50	1.0	4.1/6.2	3.8/5.1	4.3/6.3
EMT	1.0-500	0.9966	0.63	2.1	3.3/4.6	2.2/5.5	3.8/4.8
NVP	1.0-500	0.9976	0.55	0.90	5.1/6.5	5.6/7.1	4.1/6.3
BIC	10-1000	0.9962	4.6	9.6	2.1/3.5	1.3/4.0	2.1/4.2

*BIC low level was evaluated at 15 $\mu g \cdot L^{-1}$