



Mitochondrial targeting by use of lipid nanocapsules loaded with SV30, an analogue of the small-molecule Bcl-2 inhibitor HA14-1

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Auteur	Weyland, M. [1], Manero, F. [2], Paillard-Giteau, A. [3], Gree, D. [4], Viault, Guillaume [5], Jarnet, D. [6], Menei, Philippe [7], Juin, P. [8], Chourpa, I. [9], Benoît, Jean-Pierre [10], Gree, R. [11], Garcion, Emmanuel [12]
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Résumé en anglais	<p>Taking advantage from the development of SV30, a new analogue of the pro-apoptotic molecule HA14-1, the aim of this study was to functionally evaluate SV30 and to develop safe nanocarriers for its administration. By using an inversion phase process, 57nm organic solvent-free lipid nanocapsules loaded with SV30 (SV30-LNCs) were formulated. Biological performance of SV30 and SV30-LNCs were evaluated on F98 cells that express Bax and Bcl-2, through survival assays, HPLC, flow cytometry, confocal microscopy and spectral imaging. We observed that SV30 alone or in combination with paclitaxel, etoposide or beam radiation could trigger cell death in a similar fashion to HA14-1. Although partially blocked by Z-VAD-fmk, this effect was coincident to caspase-3 activation. Hence, we established that SV30-LNCs improved SV30 biological activity together with a potentiation of the mitochondrial membrane potential decrease. Interestingly, flow cytometry and confocal analysis indicated that SV30 itself conferred to LNCs improved mitochondrial targeting skills that may present a great interest toward the development of mitochondria targeted nanomedicines.</p>

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