

Title page

Co-loading of Levodopa and Curcumin Using Brain-targeted Protocells for Improving the Efficacy of Parkinson's Disease

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I. Supplementary figures and tables involved in the manuscript

Tab S1. Physicochemical characteristics of sp-MSNs and MSNs (mean $\pm$ SD; n=3).

	sp-MSNs	MSNs
Particle size (nm)	87.7 ± 0.2	92.4 ± 2.2
PDI	0.146 ± 0.010	0.118 ± 0.118

Tab S2. Pore structure parameters of sp-MSNs and MSNs.

	BET Surface Area (m ² /g)	Pore Diameter (nm)	Pore Volume (cm ³ /g)
sp-MSNs	743.78	5.44	1.01
MSNs	572.99	8.00	1.15

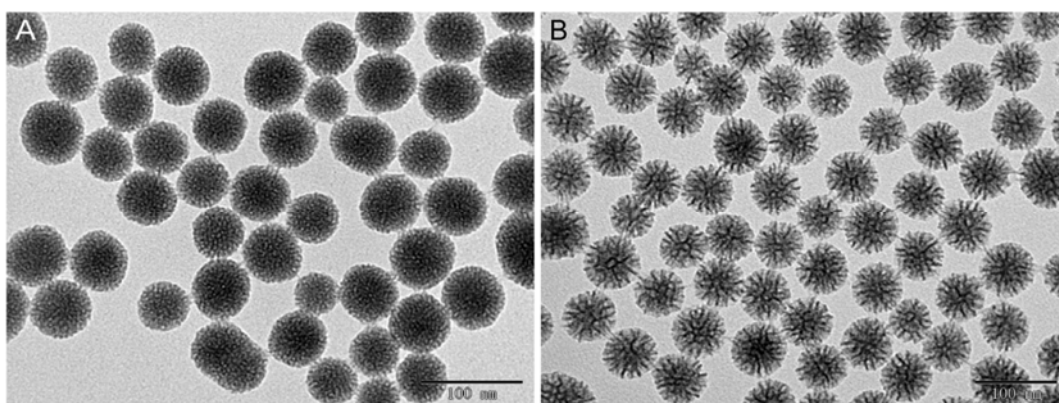


Fig. S1 Transmission electron microscopy images of sp-MSNs (A) and MSNs (B).

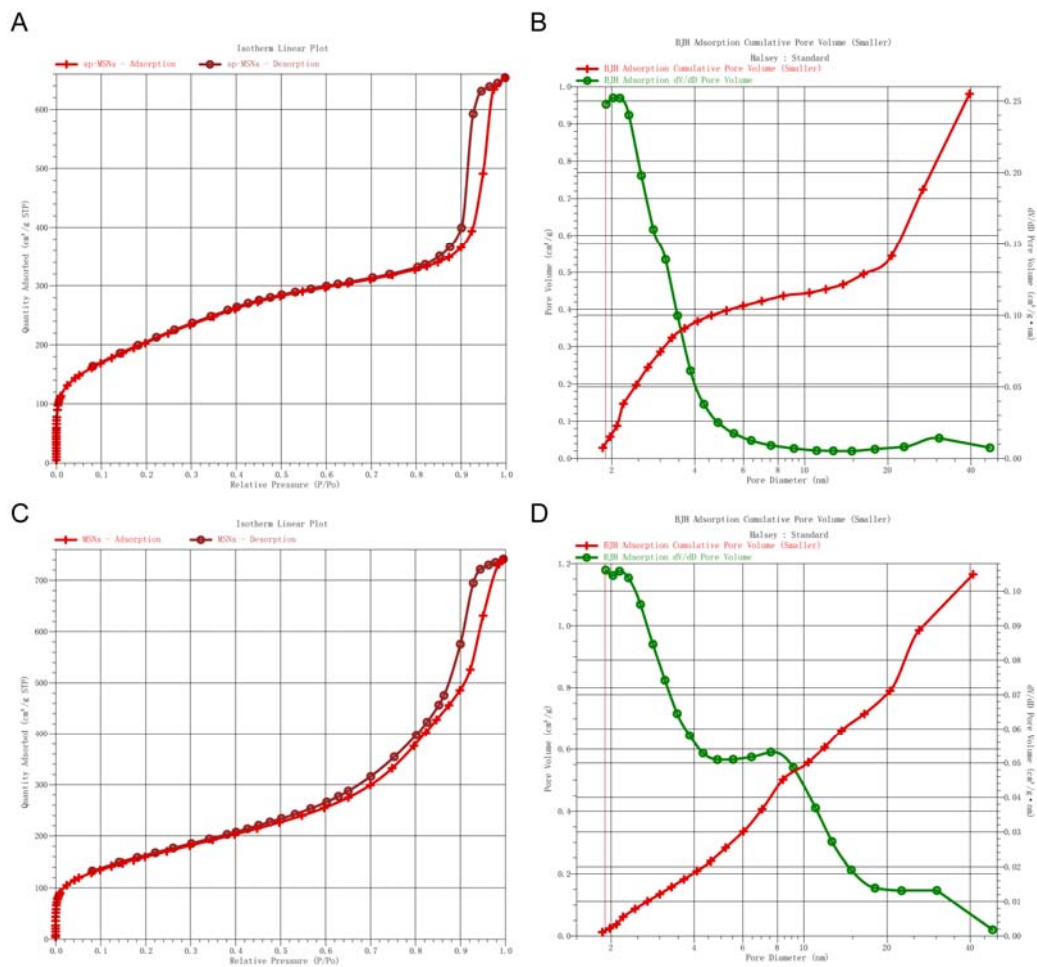


Fig. S2 The N₂ adsorption/desorption isotherms of sp-MSNs (A) and MSNs (C), and the pore size distributions of sp-MSNs (B) and MSNs (D).

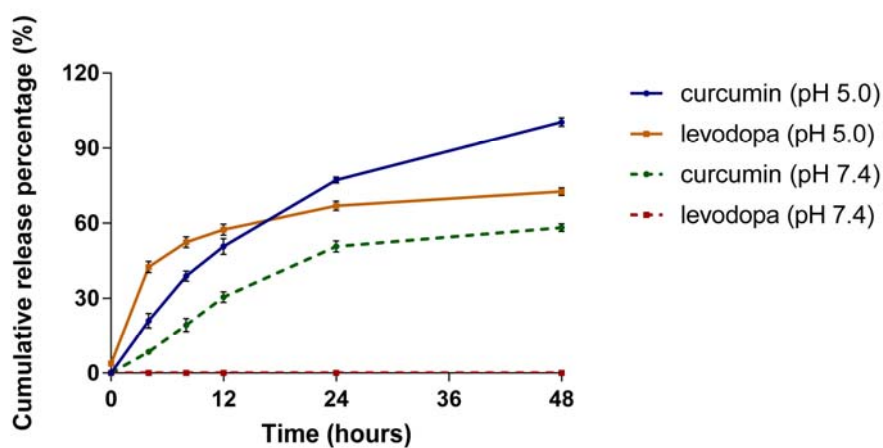


Fig. S3 The levodopa and curcumin release profiles of binary-drug loaded If-protocells in neutral or acidic medium.

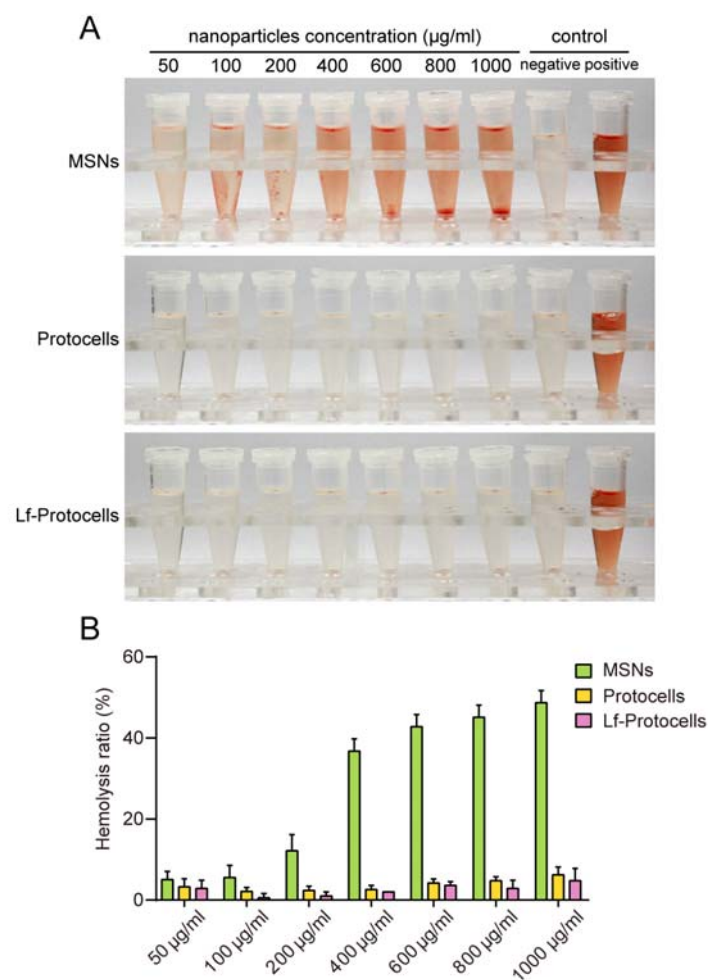


Fig. S4 Hemolysis activity of MSNs, protocells, lf-protocells at different concentrations.

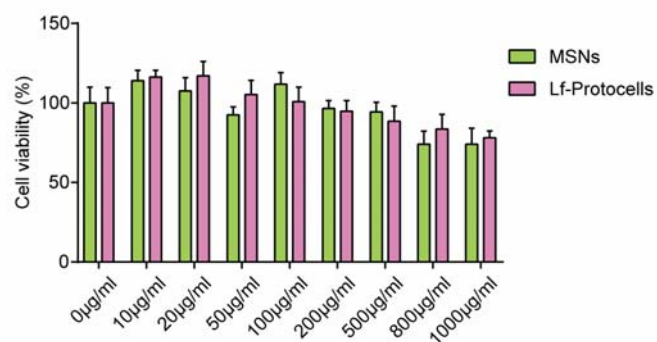


Fig. S5 The cell viability of MSNs and lf-protocells at different concentrations.

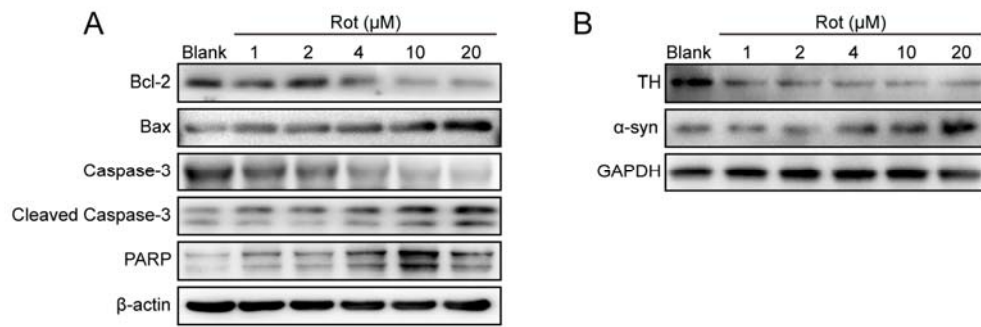


Fig. S6 The effects of rotenone induction on the expressions of apoptosis related proteins and PD related proteins in SH-SY5Y cells through western blot analysis.

(A) Expression of apoptosis related proteins in rotenone group. (B) Expression of PD related proteins in rotenone group. The expression levels of Bax, Cleaved Caspase-3, PARP, α -syn were increased, while the expression levels of Bcl-2, Caspase-3 and TH were significantly decreased by the rotenone treatment compared with control.

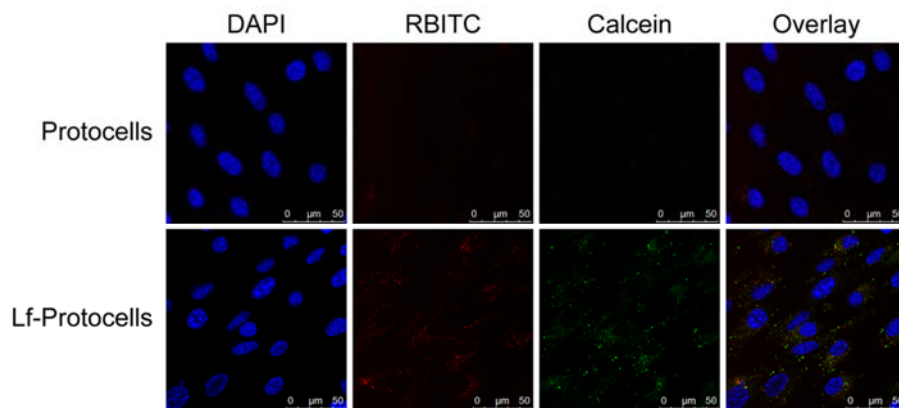
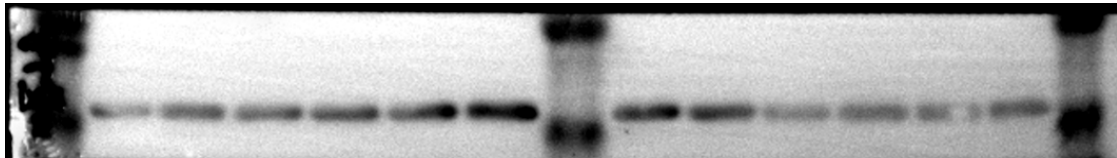


Fig. S7 Ultra High Resolution Microscope images of bEnd.3 cells incubated with RBITC/Calcein-protocells or RBITC/Calcein-lf-protocells after 4 h incubation at 37 °C.

II. Original full-length gels/blots corresponding to gels/blots in Fig S6.



(1) left



(2) left



(3) right



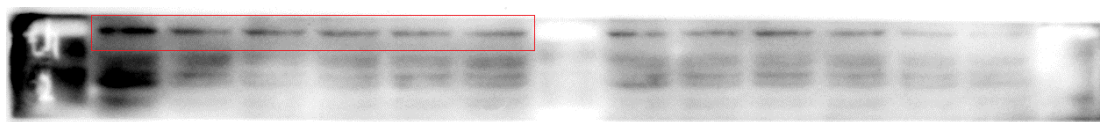
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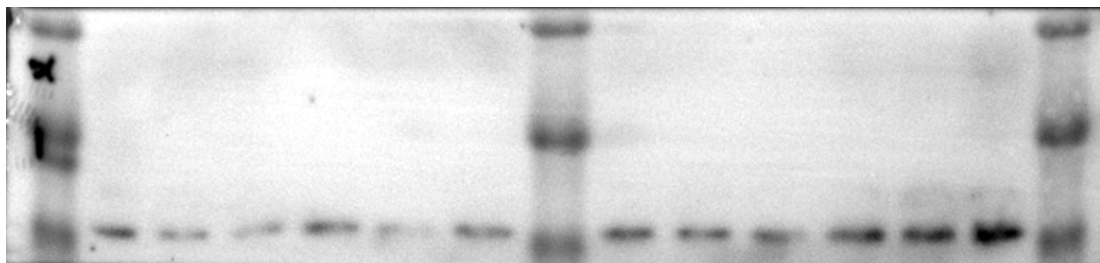
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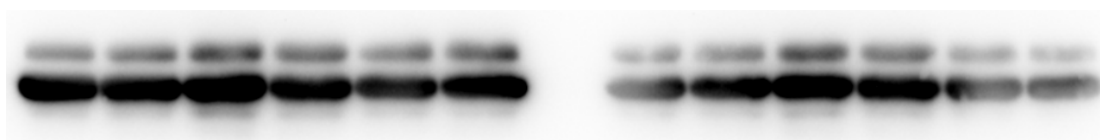
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(8) right



(9) left

Fig SS-1 Original full-length gels/blots corresponding to gels/blots in Fig S6

(1) Fig S6 A: Bcl-2; (2) Fig S6 A: Bax; (3) Fig S6 A: Caspase-3; (4) Fig S6 A: Cleaved Caspase-3; (5) Fig S6 A: PARP; (6) Fig S6 A: β -actin; (7) Fig S6 B: TH; (8) Fig S6 B: a-syn; (9) Fig S6 B: GAPDH.

Note:

Original full-length GAPDH gels/blots corresponding to Fig S6 B were not saved. Another full-length GAPDH gels/blots done under the same condition is provided here, and the two results are identical.