Supporting Information

Inhalable formulation based on lipid-polymer hybrid nanoparticles for the macrophage targeted delivery of Roflumilast

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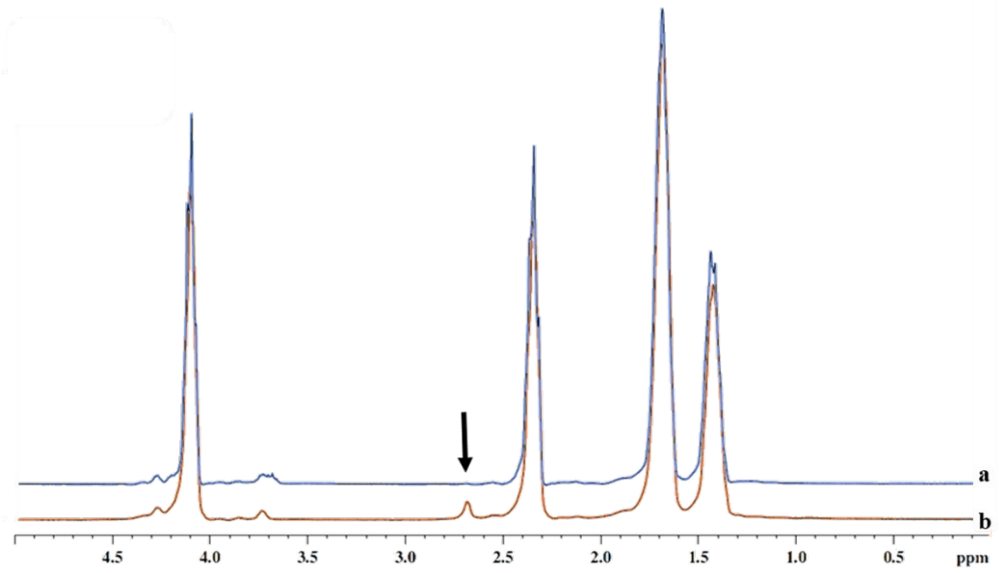

Figure S1. [1]H NMR spectra of PCL and PCL-Succ in $CDCl_3$.

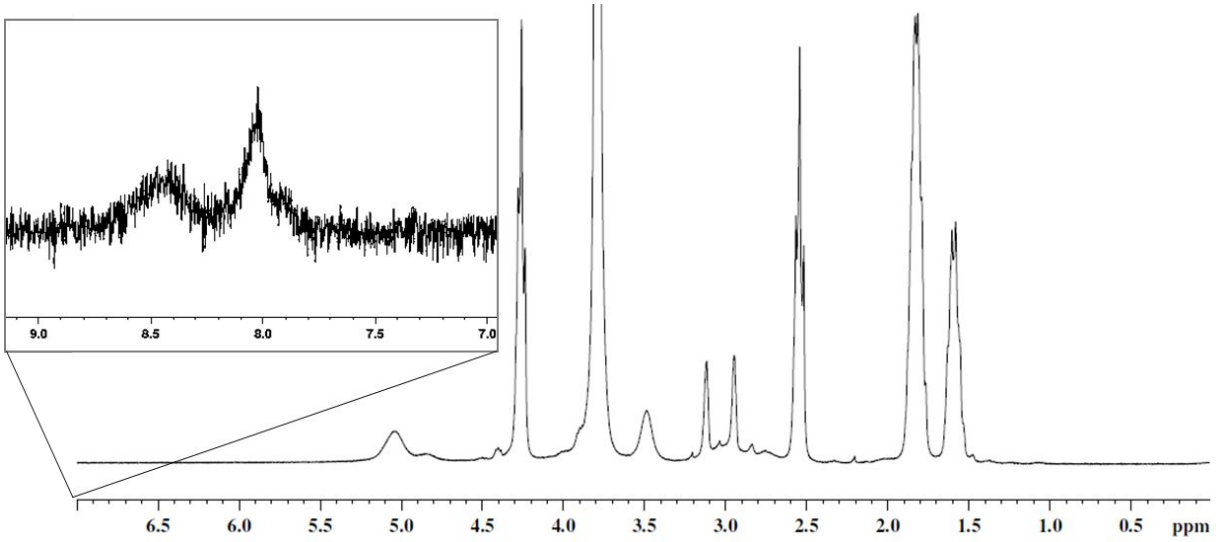

Figure S2. ^{1}H-NMR spectrum of PHEA-g-RhB-g-SUCC-PCL copolymers in DMF-d7.

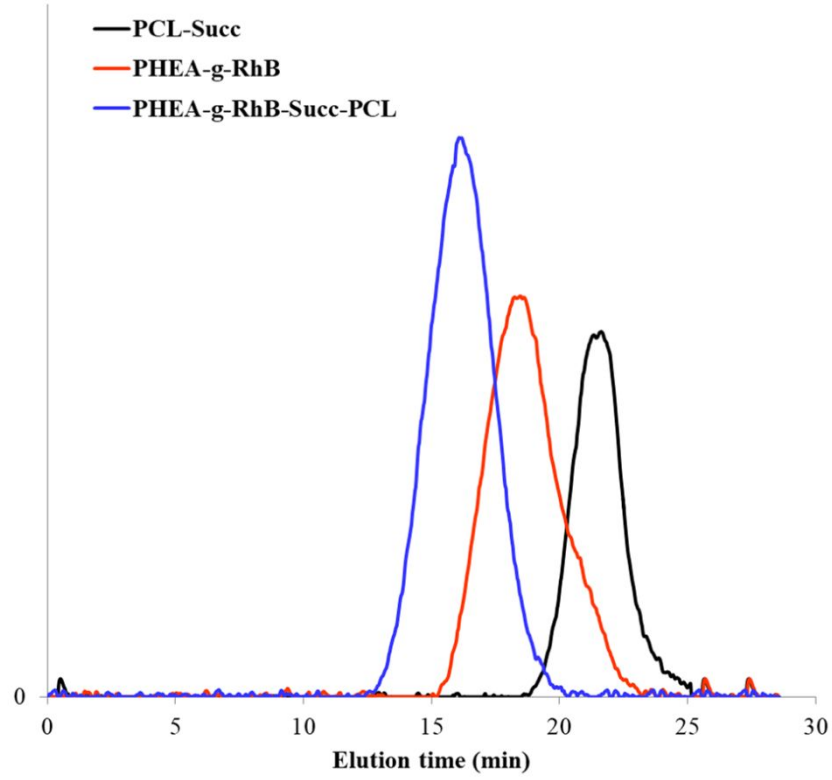

Figure S3. Size Exclusion Chromatography (SEC) chromatograms for PCL-Succ (black line), PHEA-RhB (red line) and PHEA-g-RhB-g-Succ-PCL graft copolymer (blue line) in DMF + LiBr 0.01M.

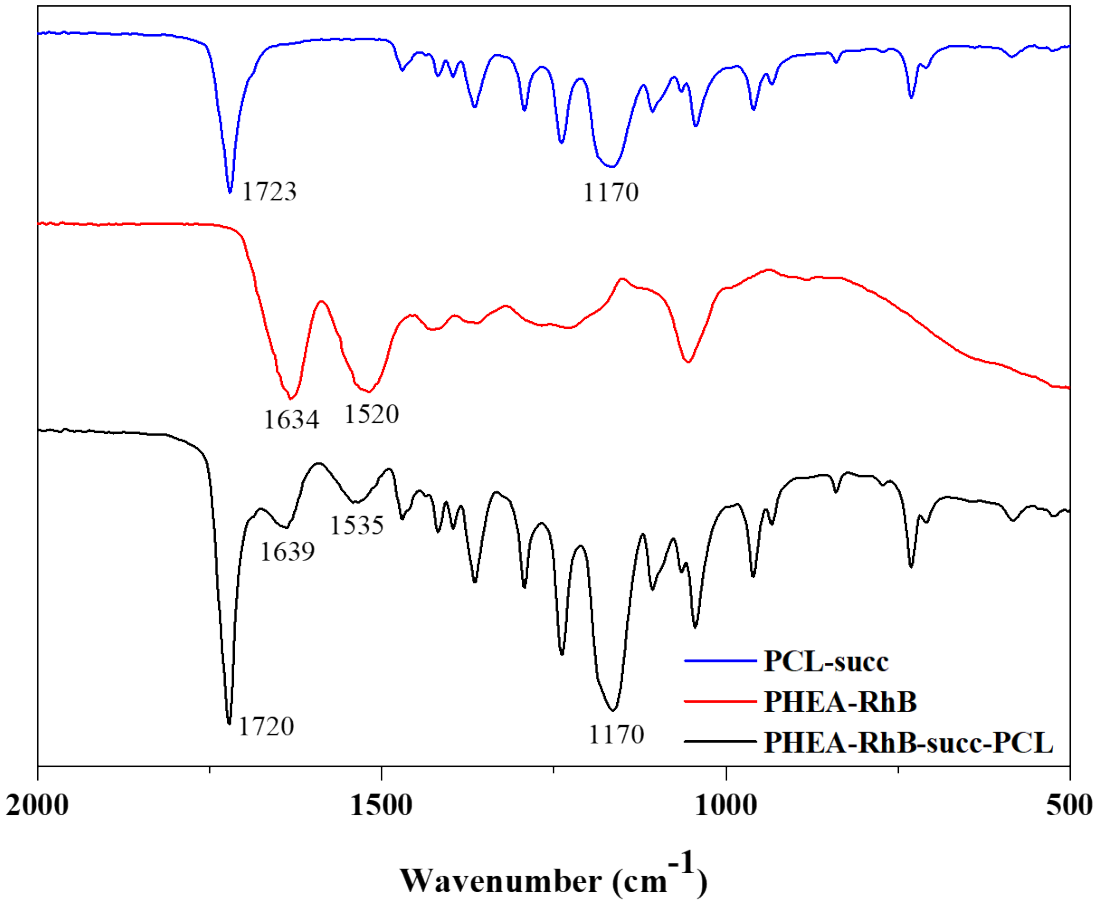

Figure S4. FT-IR spectra of PCL-Succ (blue line), PHEA-g-RhB (red line), and PHEA-g-RhB-g-Succ-PCL graft copolymer (black line). Each freeze-dried copolymer was analysed and spectra were registered by a Bruker ALPHA FT-IR spectrometer (Bruker, Milan, Italy).

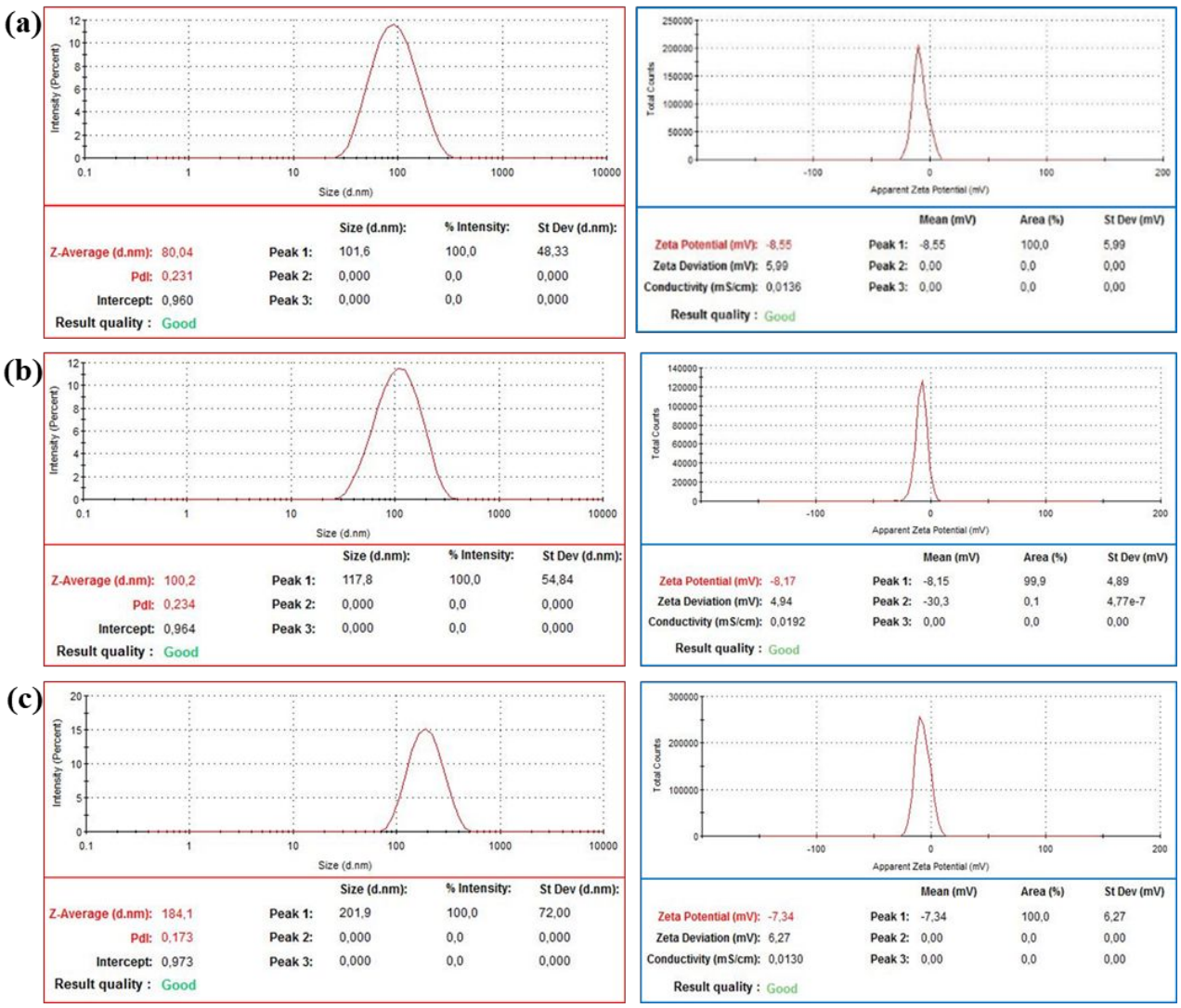

Figure S5. Distribution curves of mean size (intensity %) (left) and zeta potential (right) of sample LPHFNPs before freeze-drying (a), and after freeze-drying and redispersion in bidistilled water (b) or in a 10 mM NaCl aqueous solution (c). Both analyses were obtained by using a Malvern Zetasizer NanoZS (Malvern Instruments).

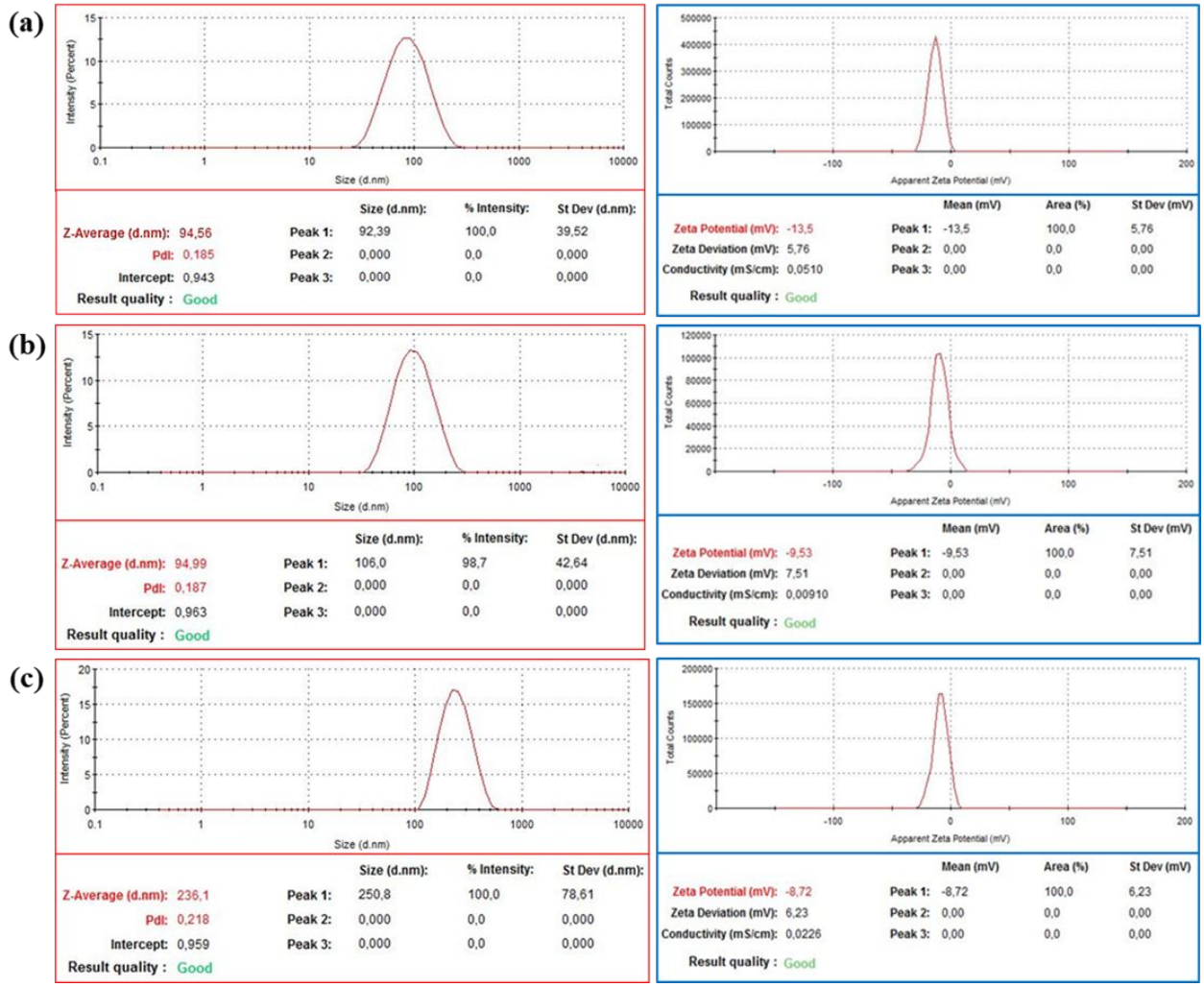

Figure S6. Distribution curves of mean size (intensity %) and zeta potential of sample LPHFNPs@Roflumilast before freeze-drying (a), and after freeze-drying and redispersion in bidistilled water (b) or in a 10 mM NaCl aqueous solution (c).

Figure S7. Distribution curves of mean size (intensity %) and zeta potential of sample Man-LPHFNPs before freeze-drying (a), and after freeze-drying and redispersion in bidistilled water (b) or in a 10 mM NaCl aqueous solution (c).

Figure S8. Distribution curves of mean size (intensity %) and zeta potential of sample Man-LPHFNPs@Roflumilast freeze-drying (a), and after freeze-drying and redispersion in bidistilled water (b) or in a 10 mM NaCl aqueous solution (c).