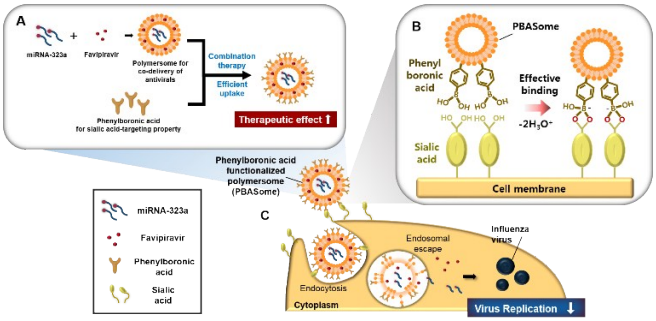
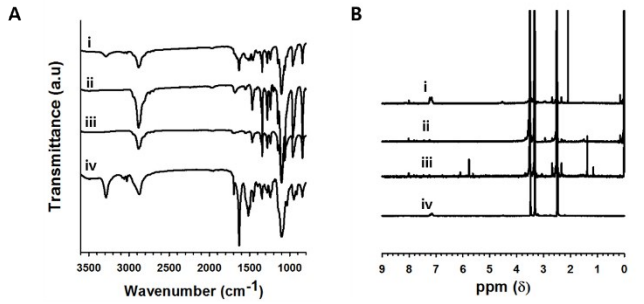
Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supplementary information



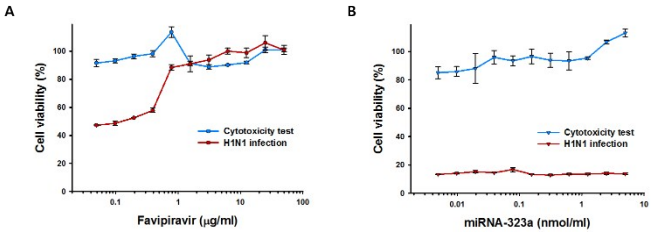
Supplement Fig. 1. A) Schematic diagram of co-delivery system based on phenylboronic acid functionalized polymersomes (PBASome) to deliver antivirals. B) Effective binding mechanism of phenylboronic acid targeting sialic acid on cell surface. C) Delivery and transfection of antivirals encapsulated within PBAsomes for influenza virus treatment.



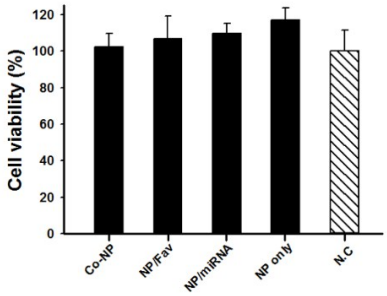
C

Copolymer	f_{mPEG}	Mw (g/mol)	Diameter (nm)	PDI
$mPEG_{44}$-b-$pPhe_{16}$	0.46	4317	206 ± 77.5	0.11
PBA-PEG_{44}-b-$pPhe_{15}$	0.47	4214	191 ± 71.5	0.21

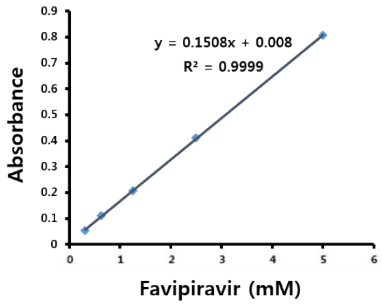
Supplement Fig. 2. Polymer characterization. A) FT-IR and B) ^{1}H NMR spectrum of (i) PBA-PEG_{44}-$pPhe_{15}$ (f_{mPEG} = 0.47), (ii) NH_2-PEG_{44}-PBA, (iii) *t*BOC-PEG_{44}-PBA and (iv) $mPEG_{44}$-b-$pPhe_{16}$ (f_{mPEG} = 0.46). C) characterization table of $mPEG_{44}$-b-$pPhe_{16}$ and PBA-PEG_{44}-b-$pPhe_{15}$.



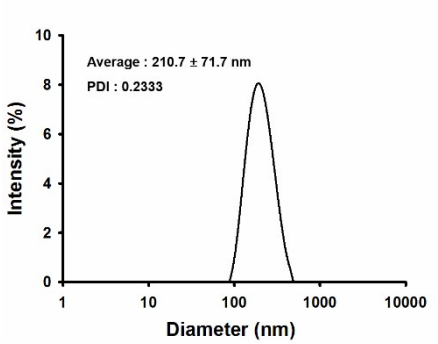
Supplement Fig. 3. *In vitro* cell viability test of antiviral drugs by EZ-Cytox assay. Cytotoxicity and antiviral activity of A) favipiravir and B) miRNA-323a were analyzed. MDCK cells were infected after 24 h of incubation at 37 ℃ for antiviral activity test. Favipiravir and miRNA-323a were treated with following incubation for 72 h.



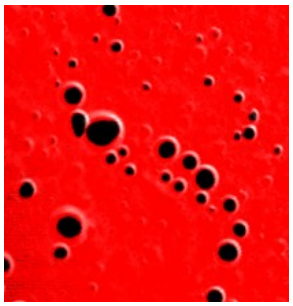
Supplement Fig. 4. *In vitro* cytotoxicity test of nanoparticles by EZ-Cytox assay. Favipiravir and miRNA-323a loaded-80 % (w/w) PBASomes (Co-NP), only favipiravir loaded-80 % (w/w) PBASomes (NP/Fav), only miRNA-323a loaded-80 % (w/w) PBASomes (NP/miRNA) and only 80 % (w/w) PBASomes (NP only) were treated (2.5mg/mL) to MDCK cells with following incubation for 72 h at 37 ℃



Supplement Fig. 5. Calibration curve of absorbance of Favipiravir at 360 nm.



Supplement Fig. 6. DLS analysis of dual drug-loaded 80 w.t.% PBASomes..(Favipiravir and mir-323a)



Supplement Fig. 7. CLSM image of giant polymersomes. (Red; Nile red)