Stepwisely Dual pH and Redox-Responsive Cross-linked Polypeptide Nanoparticles for Enhanced Cellular Uptake and Effective Cancer Therapy

Jing Qu¹, Rui Wang¹, Si Peng¹, Mengyao Shi¹, Sheng-Tao Yang¹, Jian-bin Luo¹*, Juan Lin²* and Qing-han Zhou¹*

¹College of Chemical and Environment Protection, Southwest Minzu University, First Ring Road, 4th Section No.16, Chengdu, Sichuan 610041, China.
²School of Biomedical Sciences and Technology, Chengdu Medical College, Xindu Road No.783, Chengdu, Sichuan 610500, China.

* To whom correspondence should be addressed. E-mail: luojb1971@163.com, linjuan.scu@gmail.com, zhqinghan@swun.edu.cn.
Tel: +86-28-85522269
Fax: +86-28-85524382
Figure S1 $^1$H NMR spectra of BACy in CDCl$_3$. 
Figure S2 $^1\text{H}$ NMR spectra of PBLG in CDCl$_3$/TFA.
Figure S3 $^1$H NMR spectra of PZLL in CDCl$_3$/TFA.
Figure S4 GPC curves of PBLG (a) and PZLLs (b), where the $M_{n,PBLG}$ was of 7800 (PDI=1.07), and $M_{n,PZLL}$ was of 10000 (PDI=1.19).
Figure S5 $^1$H NMR spectra of cross-linked copolymer and BLPG-NPs in CDCl$_3$. 
Figure S6 The aqueous-stability of PLBG$_1$-NPs. (a) The size change of the PLBG$_1$-NPs against different concentrated salt conditions by DLS measurement. (b) The size change of the PLBG-NPs in 10% FBS culture media.
Figure S7 BSA adsorption of PLBG$_1$-NPs under different pH conditions.
Figure S8 *In vitro* DOX release profiles of DOX-loaded NPs under different simulated physiological conditions. (a) PLBG$_1$-NPs-DOX, (b) PLBG$_2$-NPs-DOX.