

Supplementary Information

Highly potent intradermal vaccination by an array of dissolving microneedle polypeptide cocktail for cancer immunotherapy

Huu Thuy Trang Duong^{a,1}, Yue Yin^{b,c,1}, Thavasyappan Thambi^a, Bong Sup Kim^a,
Ji Hoon Jeong^{b*}, and Doo Sung Lee^{a*}

^aSchool of Chemical Engineering, Theranostic Macromolecules Research Center,
Sungkyunkwan University, Suwon 16419, Republic of Korea

^bSchool of Pharmacy, Theranostic Macromolecules Research Center, Sungkyunkwan University,
Suwon 16419, Republic of Korea

^cCAS Key Laboratory for Biomedical Effects of Nanomaterials & Nanosafety,
CAS Center for Excellence in Nanoscience, National Center for Nanoscience and Technology,
Beijing 100190, China

¹These authors contributed equally to this work.

*Corresponding authors:

Ji Hoon Jeong, Ph.D.

Tel.: +82-31-290-7783; Fax: +82-31-292-8800; e-mail: jhjeong@skku.edu

Doo Sung Lee, Ph.D.

Tel.: +82-31-299-6851; Fax: +82-31-299-6857; e-mail: dslee@skku.edu

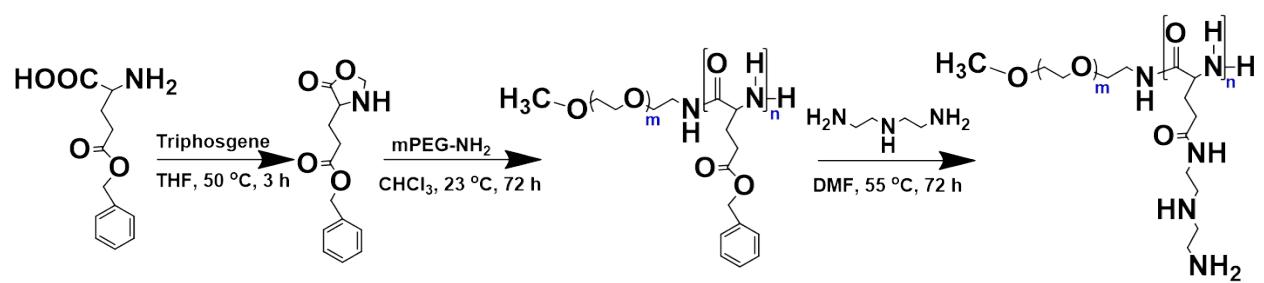


Fig. S1. Synthesis scheme of $\text{mPEG}_{5\text{k}}\text{-PN}_2\text{LG}_{30}$.

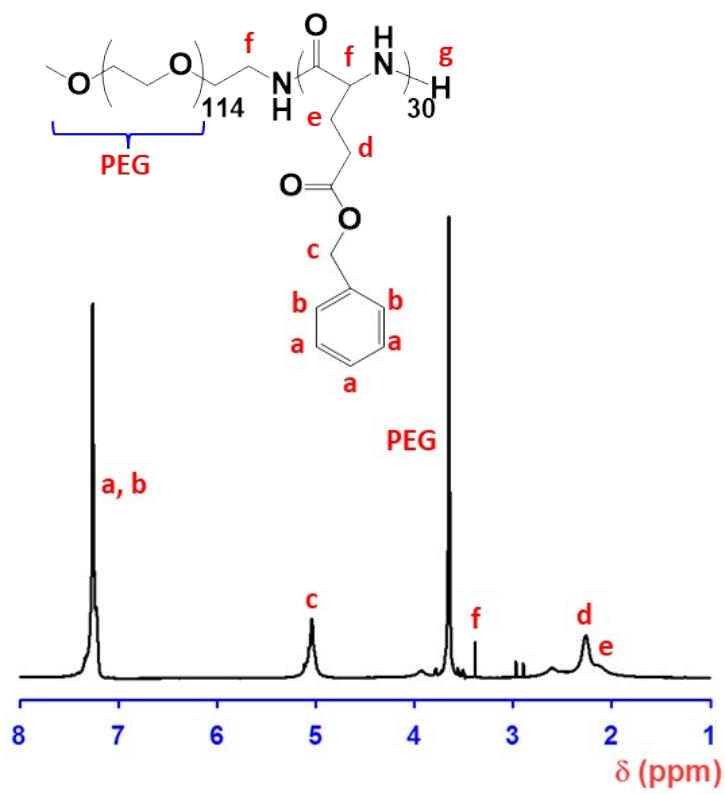


Fig. S2. ¹H NMR spectra of mPEG_{5K}-PBLG₃₀.

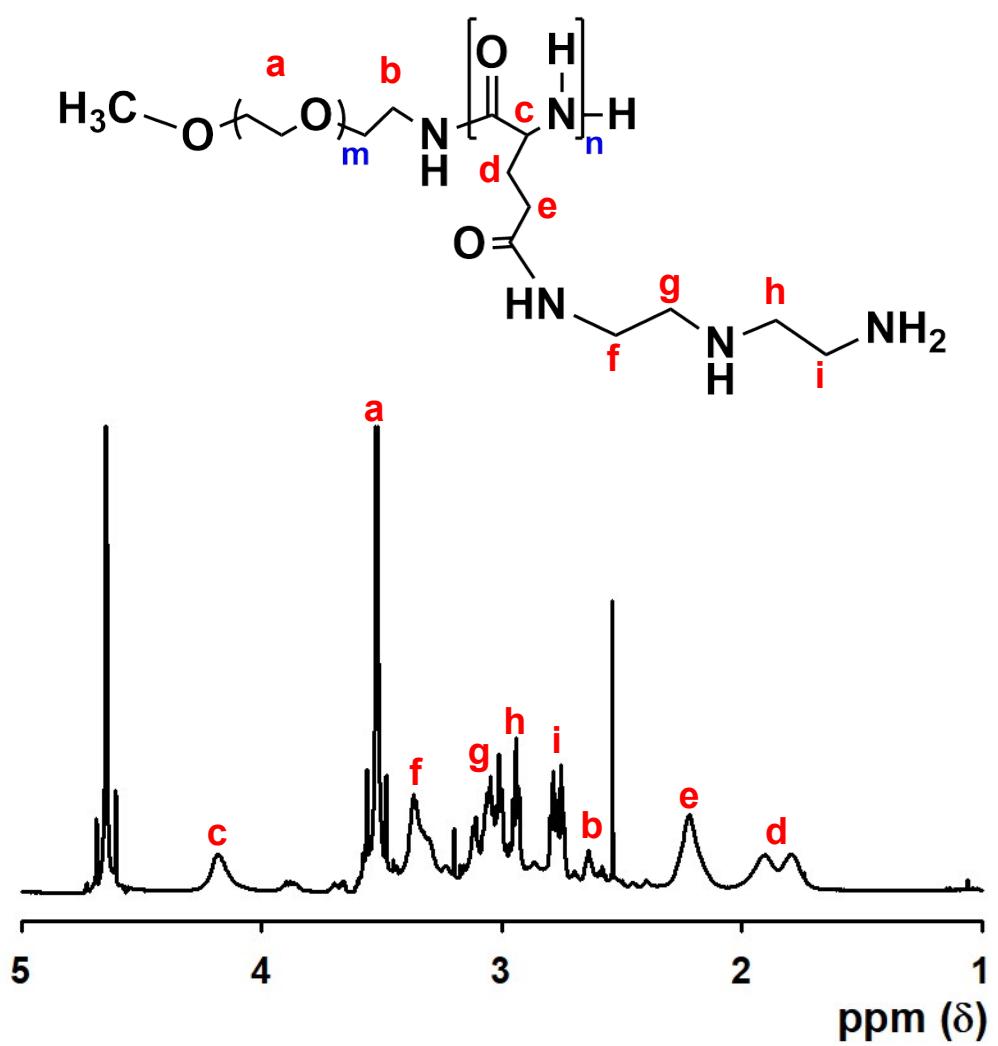


Fig. S3. ¹H NMR spectra of mPEG_{5K}-PN₂LG₃₀.

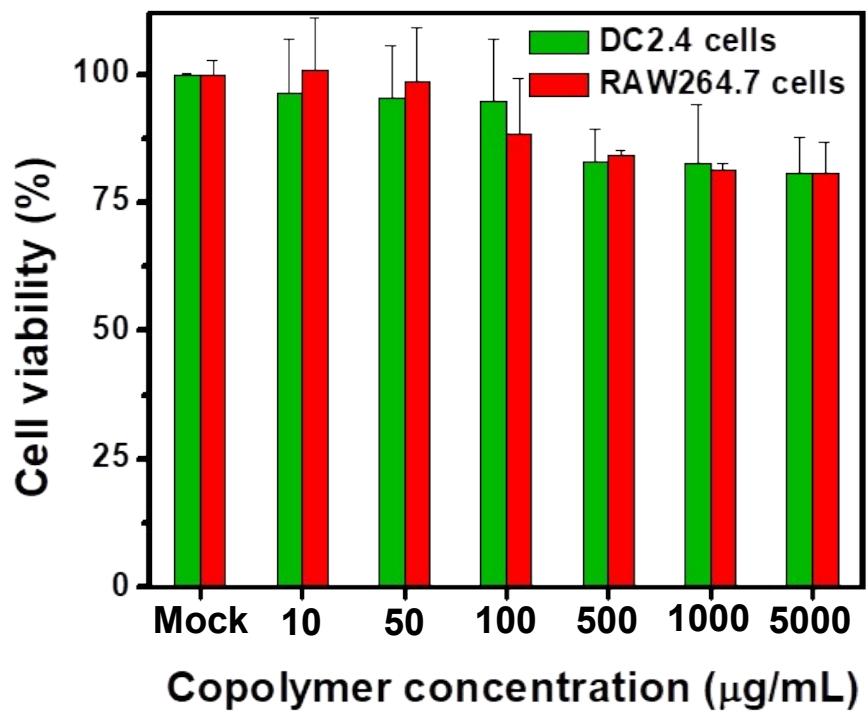


Fig. S4. *In vitro* cytotoxicity of mPEG_{5K}-PN₂LG₃₀.

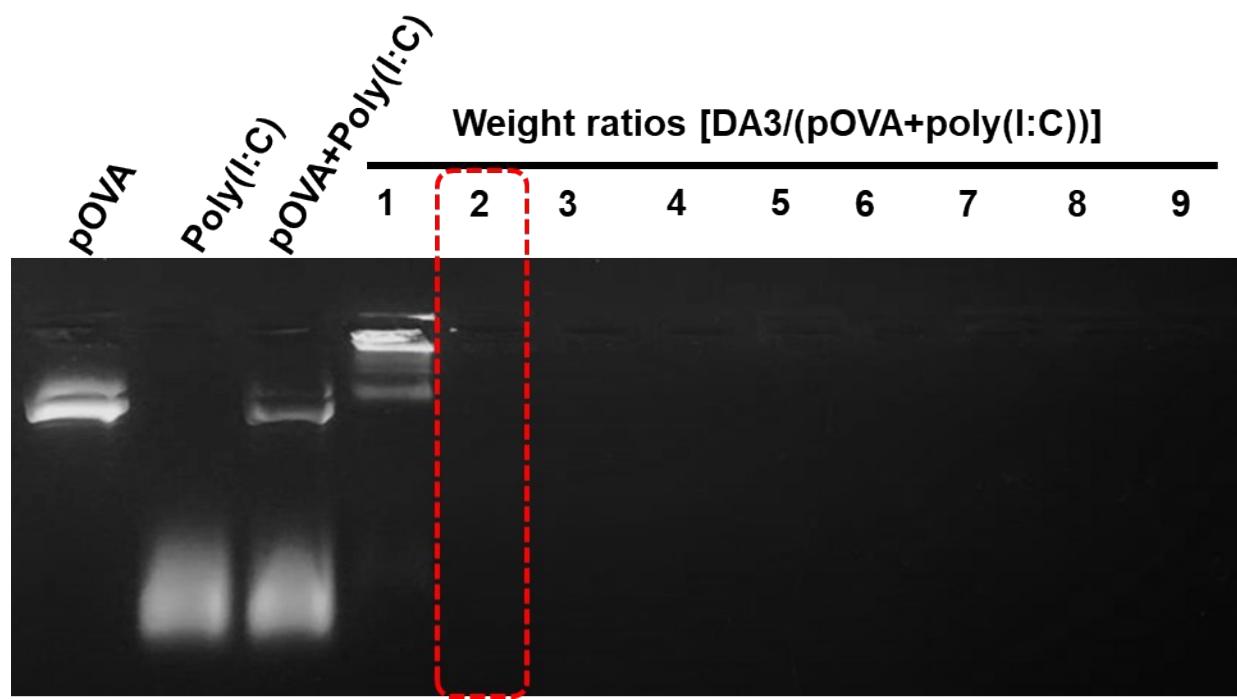


Fig. S5. Electrophoretic band mobility shift assays in agarose gel of DA3/[pOVA+poly(I:C)] nanopolyplex at different weight ratios (w/w, DA3/[pOVA+poly(I:C)]).

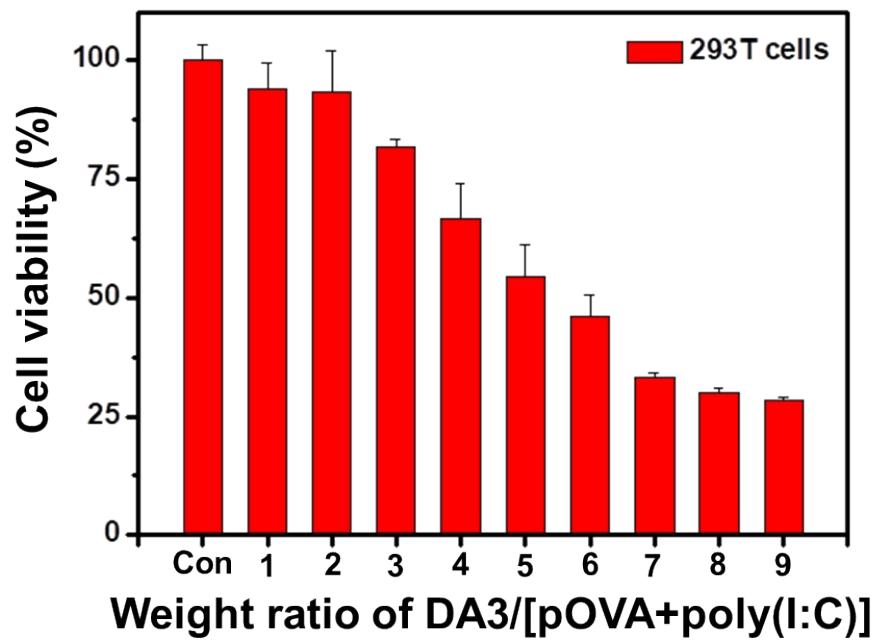


Fig. S6. Cell viability of nanopolyplexes on 293T cells at different ratios DA3/(pOVA+poly(I:C)) (wt./wt.) ($n = 8$).

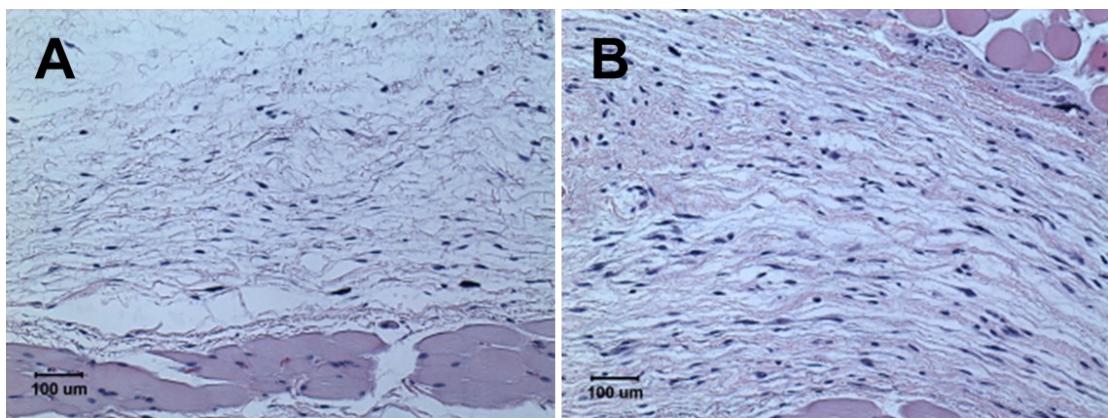


Fig. S7. Histological images of mice skins (A) PBS injection (subcutaneous) and (B) dMN injection. Mice skins were collected 24 h after implantation and stained using H&E.