

Fig S1. Compared to the significantly smaller size of the NPs (PGA/PEI/DNA 2:3:1), that of the NPs (PGA/PEI/DNA 3:3:1) was increased to 517 nm, suggesting the less stable structure.

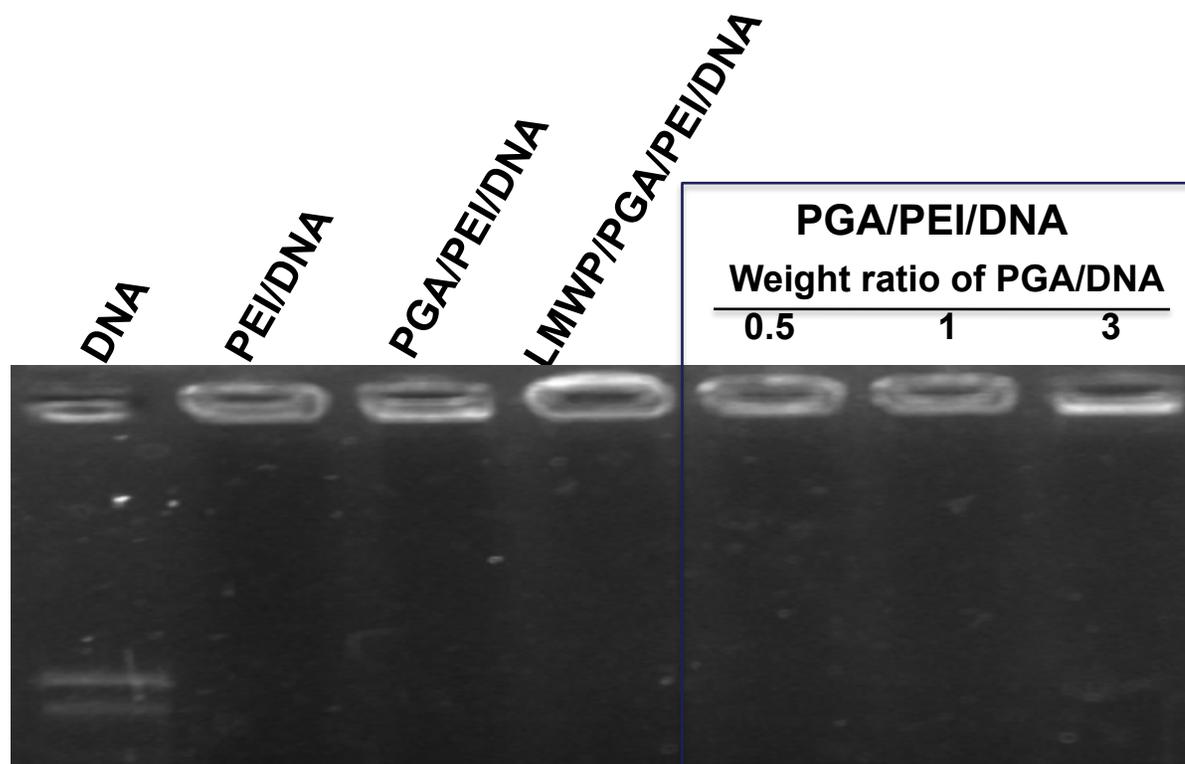


Fig S2. Agarose gel electrophoresis of PEI/DNA (3:1), PGA/PEI/DNA (2:3:1) and LMWP/PGA/PEI/DNA (10:2:3:1) NPs demonstrates the complete encapsulation of DNA. Even the PGA weight ratio increased up to 3, there is no free DNA detected, indicating the solid and stable PEI/DNA core and the insignificant competition between PGA/PEI and PEI/DNA.

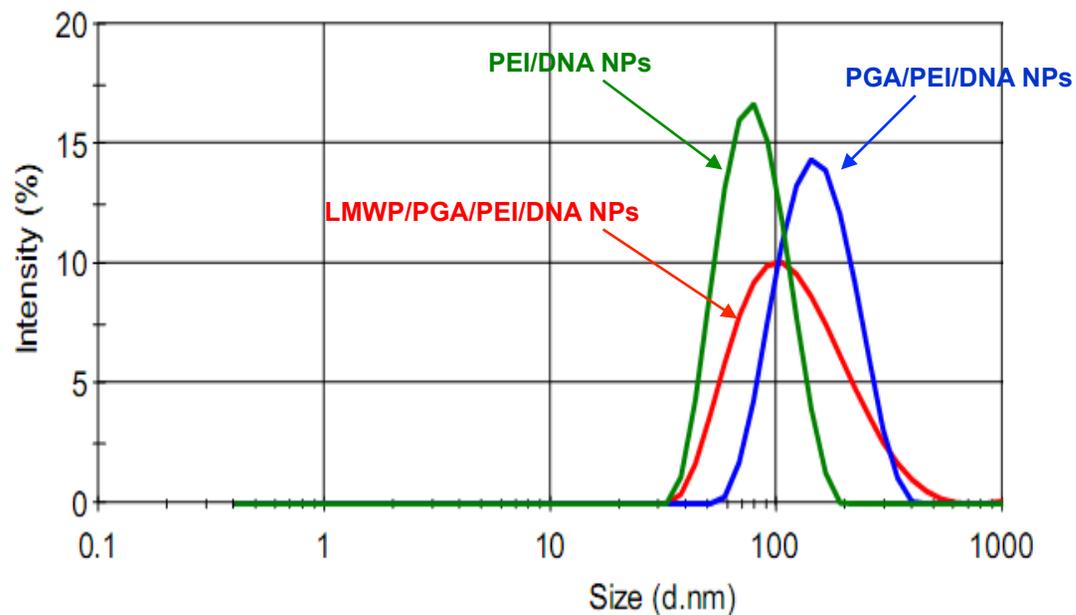


Fig S3. The homogeneity of nanoparticle structure can be controlled through the strategically selected process and optimized parameters. The optimized recipe provides relatively uniform products with good size distribution.