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Supplemental Information

Anti-tumor Activity of miniPEG-γ-Modified PNAs to Inhibit MicroRNA-210 for Cancer Therapy

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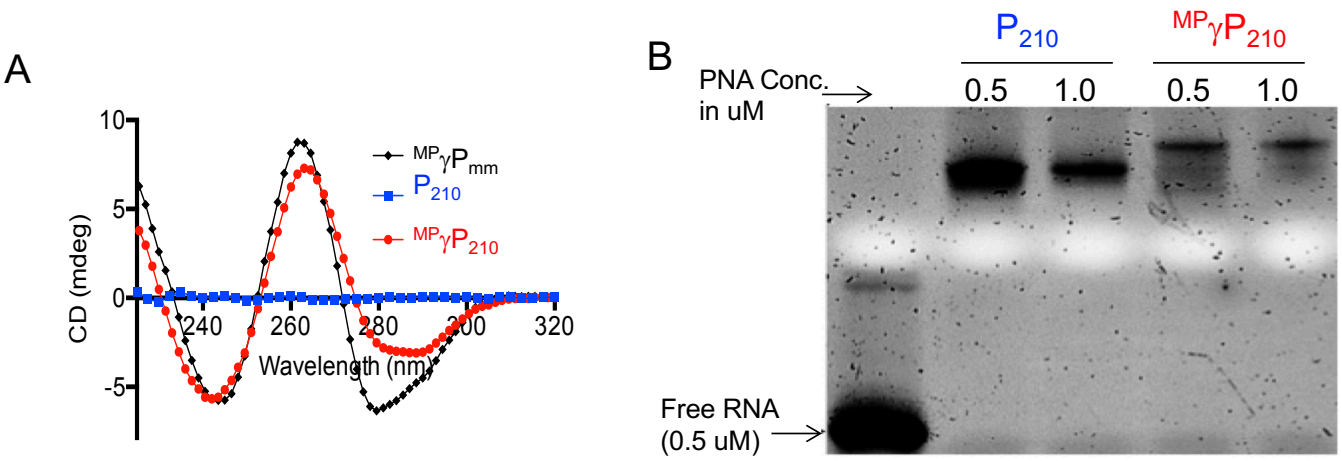

Figure S1. PNA characterization. (A) CD analysis denoting chiral structure of gamma PNAs as compared to that of regular PNA. (B) Gel shift analysis of regular and gamma PNA binding to miR-210.

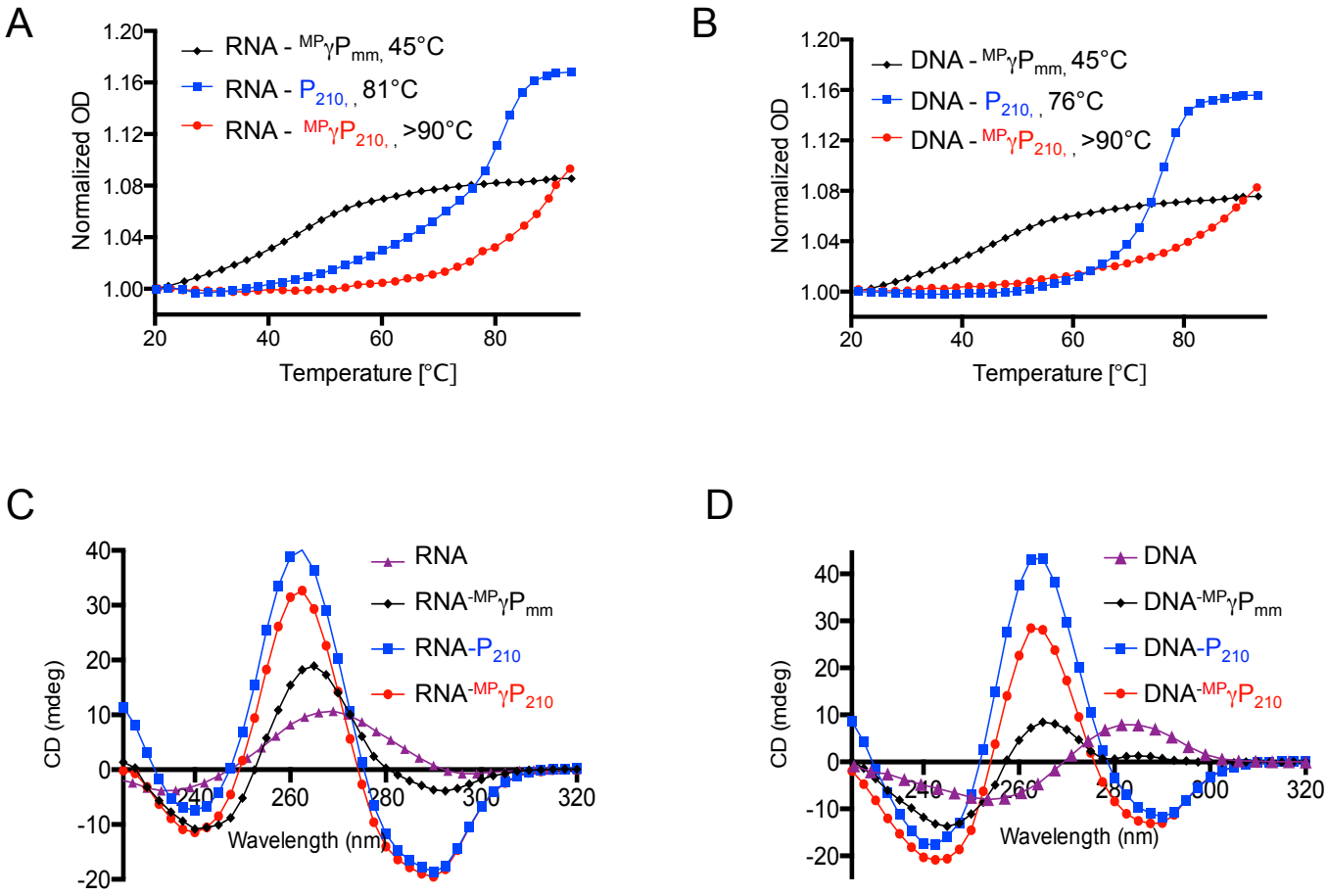

Figure S2. UV melting and CD analysis (A) UV melting profiles of RNA-PNA duplexes at 1 uM strand concentration each in sodium phosphate buffer (10 mM sodium phosphate, 100 mM NaCl, 0.1 mM EDTA, pH 7) containing 5 M Urea. (B) UV melting profiles of DNA-PNA duplexes at 1 uM strand concentration each in sodium phosphate buffer. CD characterization. **(**C**)** RNA-PNA duplexes **(**D**)** DNA-PNA duplexes at 5 uM strand concentration each in sodium phosphate buffer (10 mM sodium phosphate, 100 mM NaCl, 0.1 mM EDTA, pH 7) containing 5 M Urea.

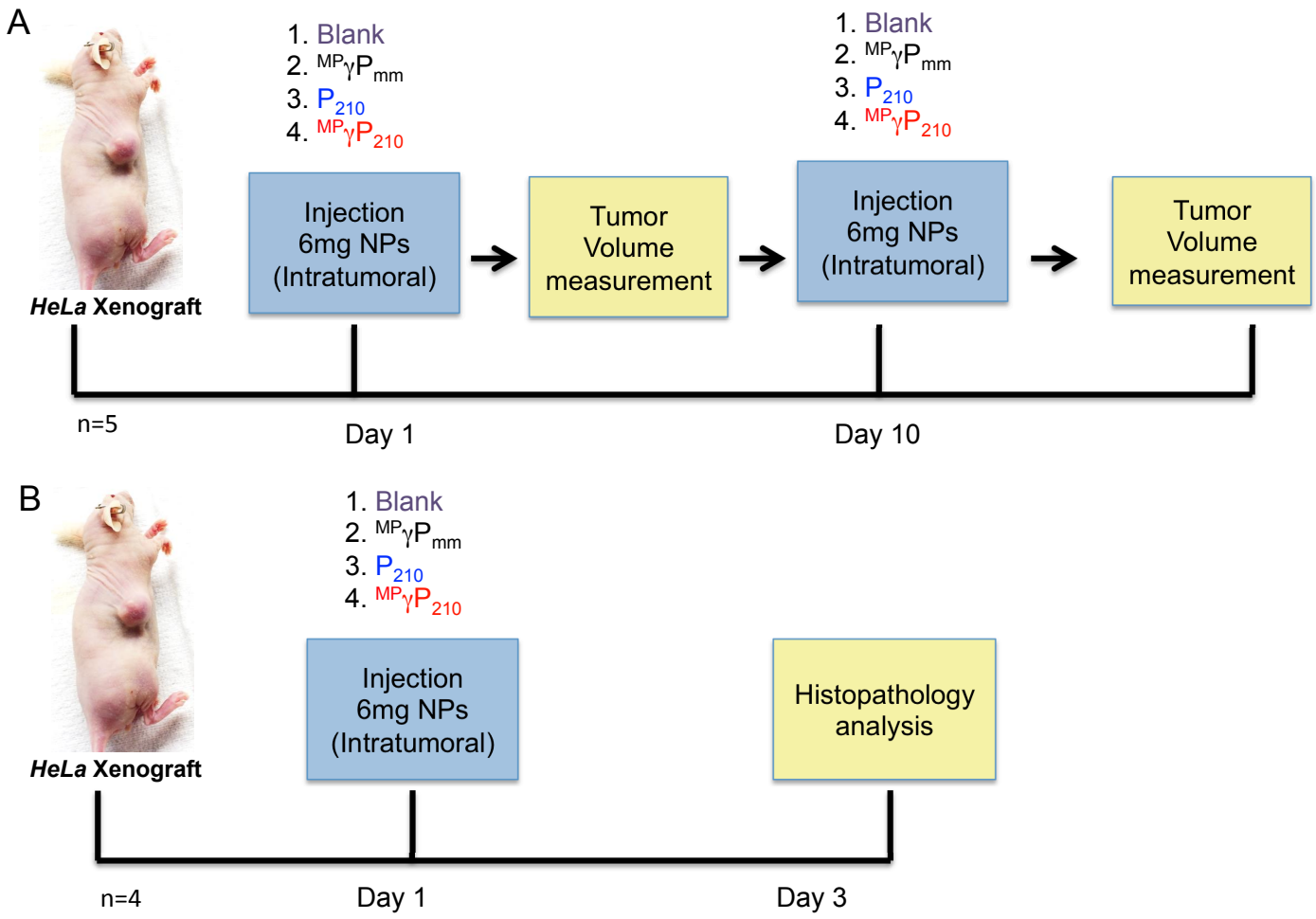

Figure S3. Experimental scheme for mouse tumor studies. **(**A**)** Workflow for treatment of HeLa xenografts for tumor growth delay studies. **(**B**)** Workflow for histopathological analysis of treated tumors.

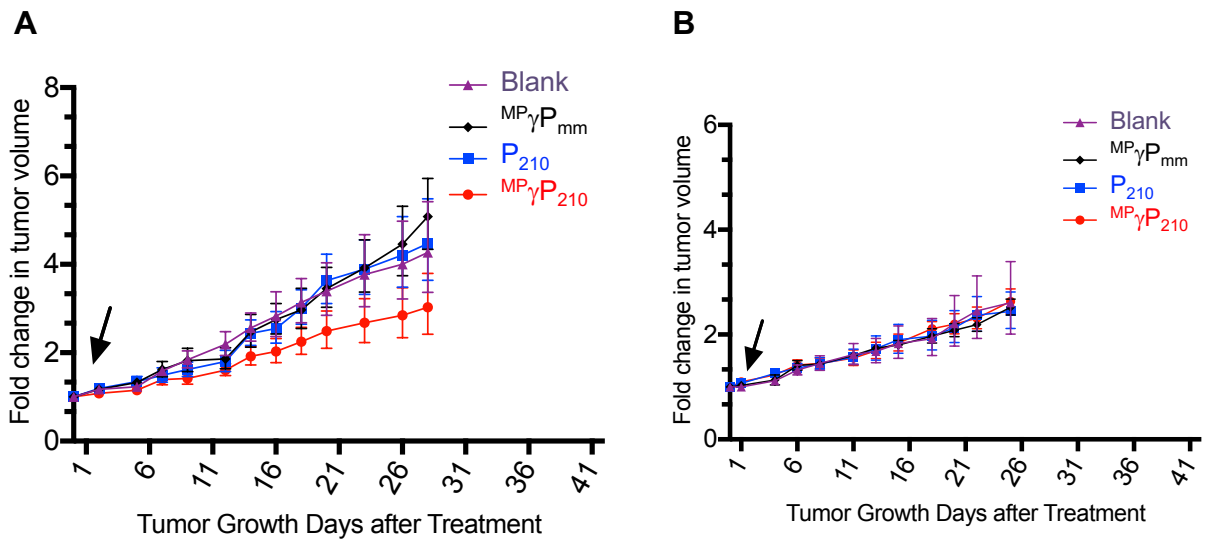

Figure S4. Additional tumor growth delay assays. (A) Fold-change in tumor growth in response to non-formulated PNA administered antimiRs. Arrowhead represents 100 uM PNA injection. (n=5 for each group, data represented as mean ±SEM). ANOVA was used for statistical analysis for each group relative to Blank group. (B) Fold-change in tumor growth in response to intravenously administered NPs as indicated (via retro-orbital injection). Arrowhead represents 12 mg nanoparticle injection. (n=5 for each group, data represented as mean ±SEM). ANOVA was used for statistical analysis for each group relative to Blank group.

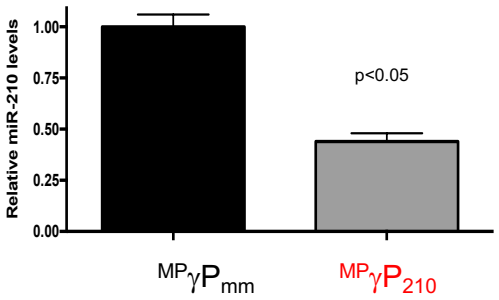

Figure S5. Relative miR-210 levels in RNA extracted from murine stromal cells isolated from xenograft tumors treated with the indicated nanoparticles. (n=3, data represented as mean ±SE); t test was used for statistical analysis, $p<0.05$.

Table 1. Charge potential and size analysis of the nanoparticles.		
NP	**Zeta Potential (mV)**	**Diameter (nm)**
Blank	-19.0 ± 0.6	290 ± 5.1
$^{MP}\gamma P_{mm}$	-23.5 ± 0.2	320 ± 1.8
P_{210}	-28.0 ± 0.5	390 ± 6.9
$^{MP}\gamma P_{210}$	-23.5 ± 0.3	310 ± 5.0