

**Electronic Supplementary Information**

**Utilization of a PNA-peptide Conjugate to Induce a Cancer Protease-Responsive RNAi Effect**

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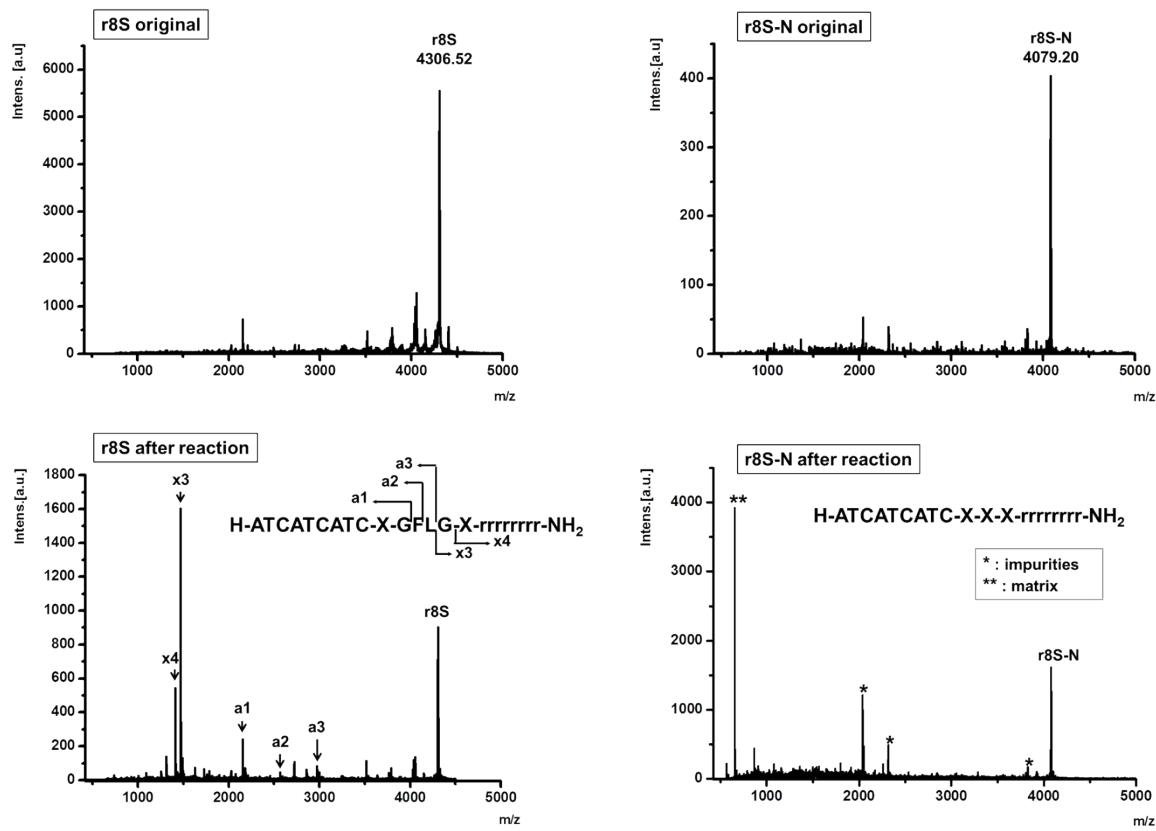
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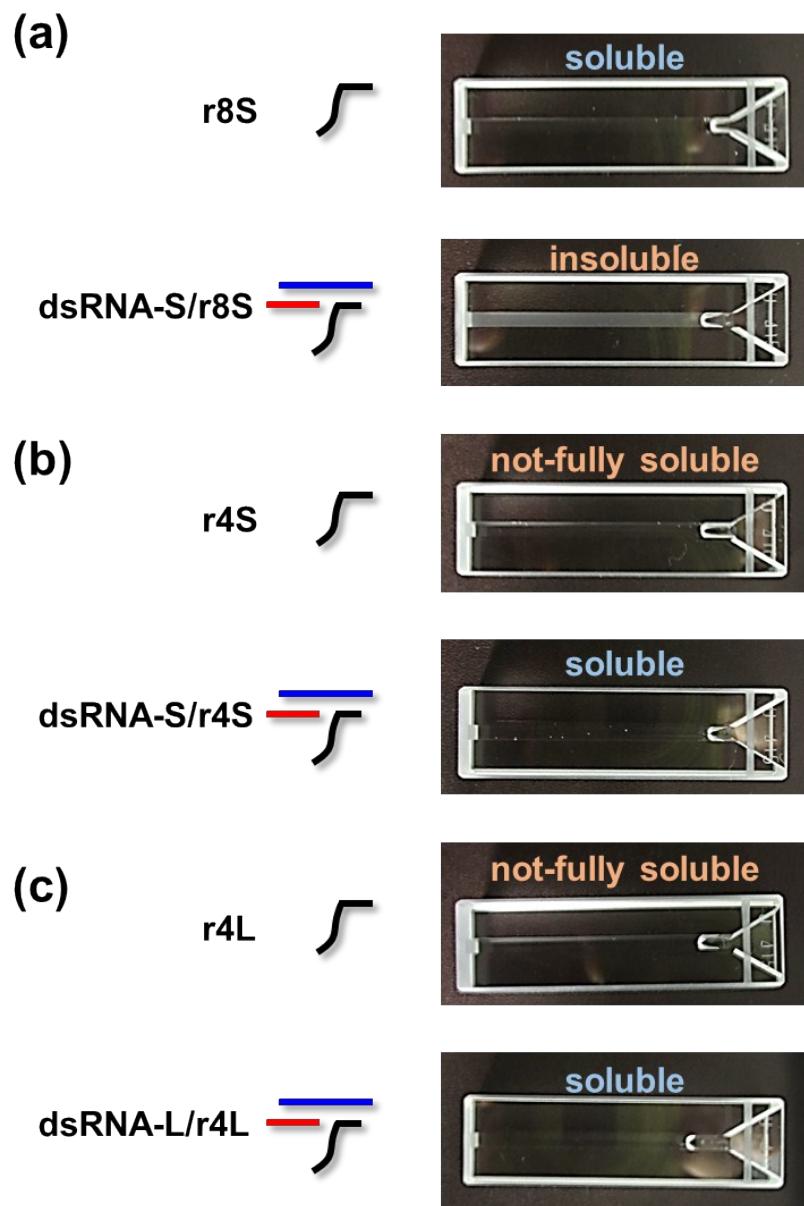
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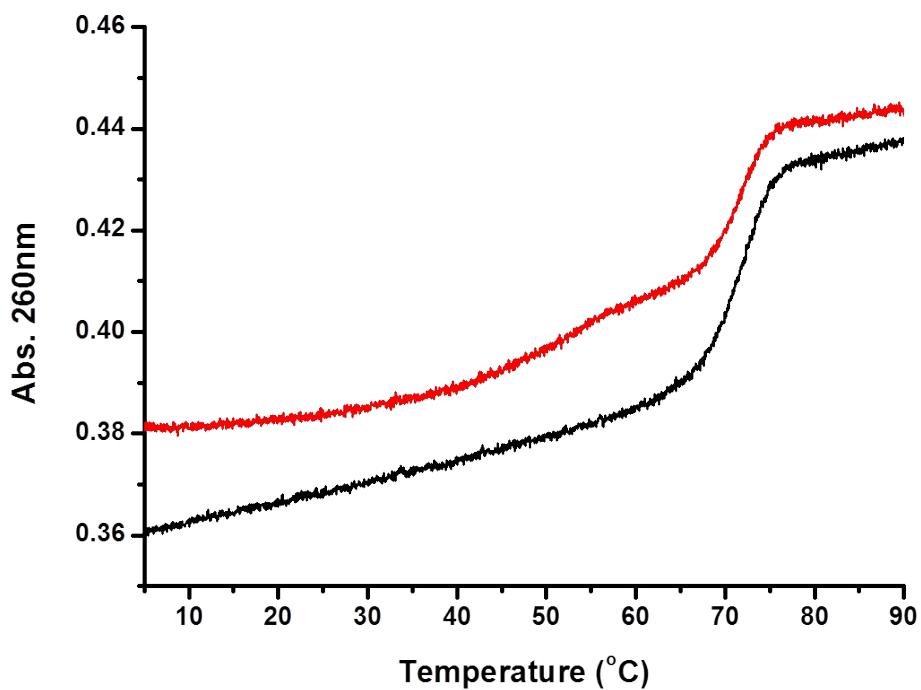
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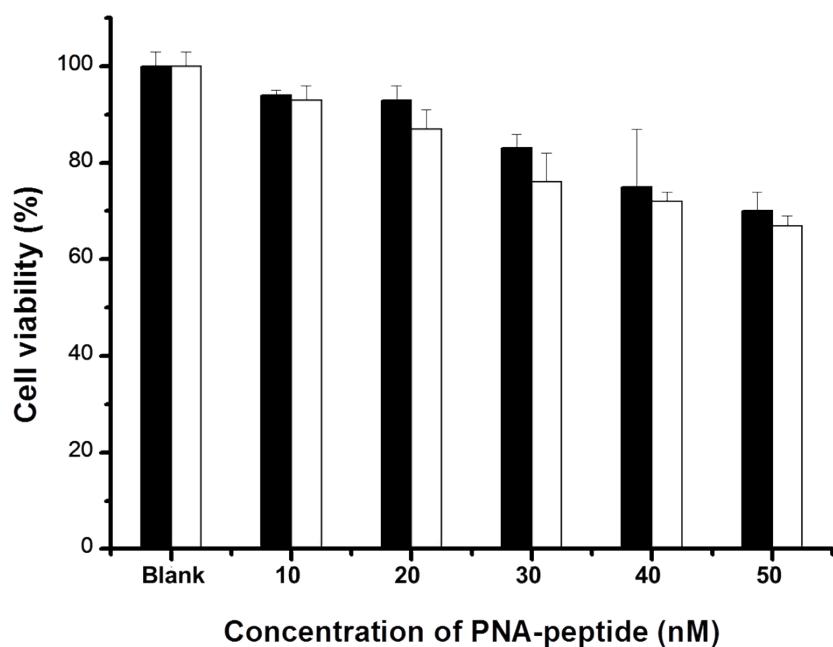
**Fig. S1** Analysis of r8S and r8S-N before and after reaction with cathepsin B by MALDI-TOF mass spectrometry



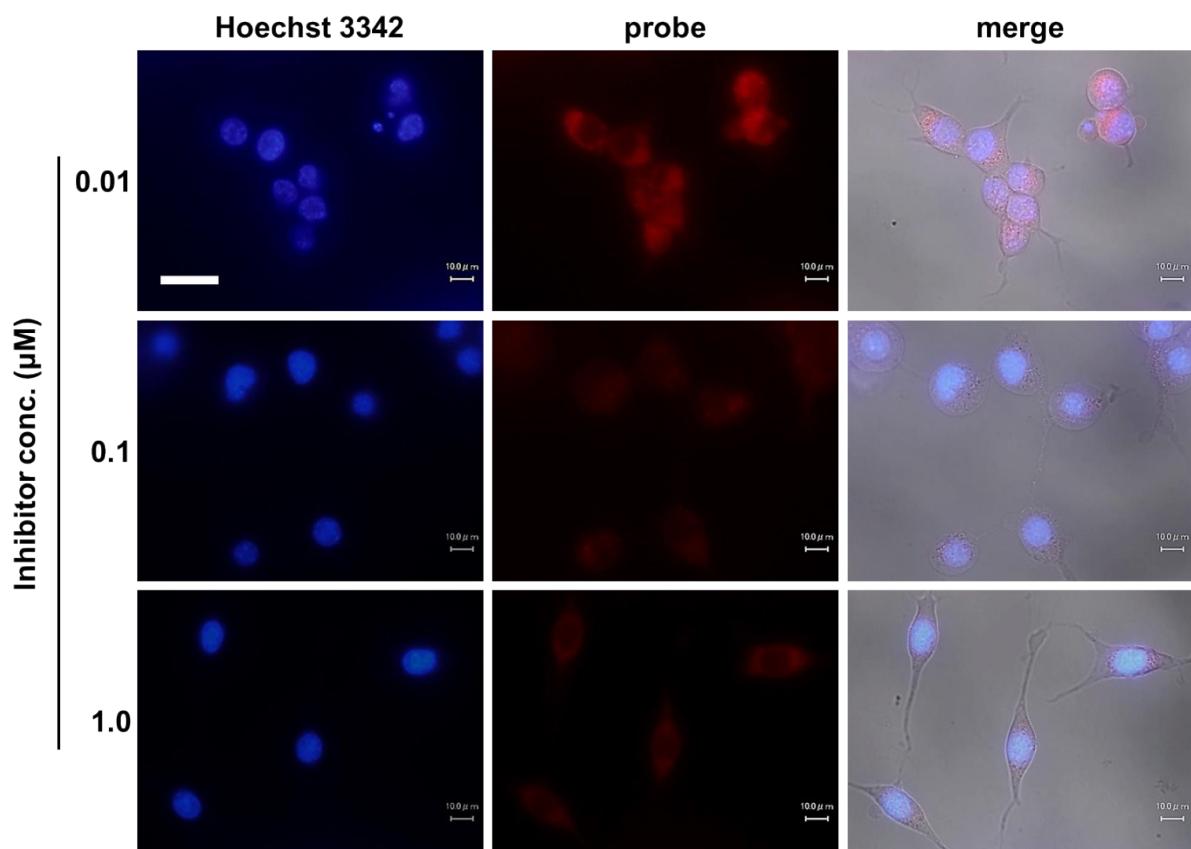
**Fig. S2** Solubility of three kinds of PNA-peptide and their hybrid with dsRNA in PBS. Concentration of PNA-peptide and dsRNA is 3  $\mu$ M, respectively.



**Fig. S3** Melting curve of dsRNA (black line) and dsRNA/r4L hybrid (red line) in PBS.



**Fig. S4** Cytotoxicity of PNA-peptide against CT-26 in the absence (filled bar) or the presence of Lipofectamine 2000 (open bar).



**Fig. S5** Inhibition of cathepsin B in CT-26 cells by inhibitor (CA-074 Me). Inhibitory activity was detected by fluorescent cathepsin B probe (Magic red cathepsin B substrate). The scale bar is 20  $\mu$ m. Cells were treated with CA-074 Me (0.01, 0.1, 1.0  $\mu$ M) for 3 h then incubated with the probe for 1 h.