

## Supplementary Materials

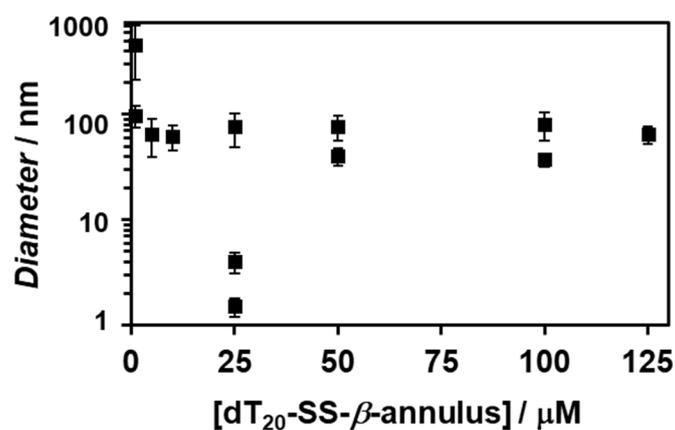
### Encapsulation of mRNA into artificial viral capsids via hybridization of a $\beta$ -annulus-dT<sub>20</sub> conjugate and the poly(A) tail of mRNA

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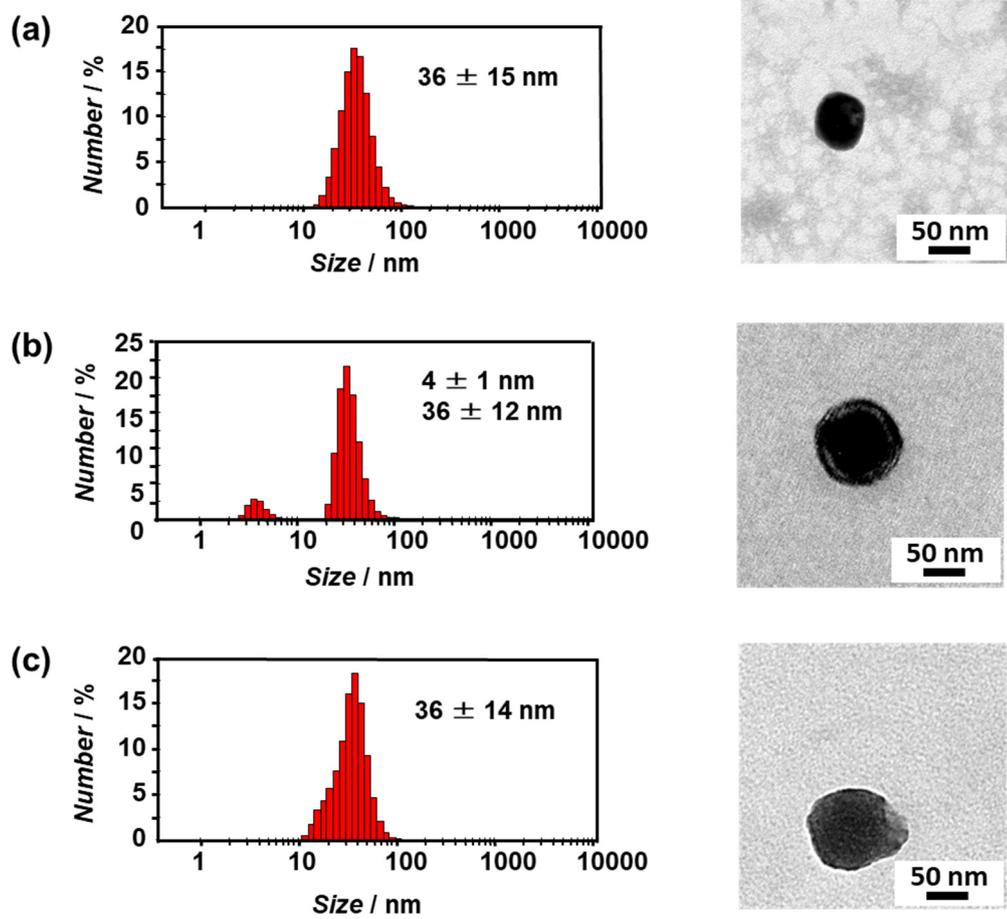
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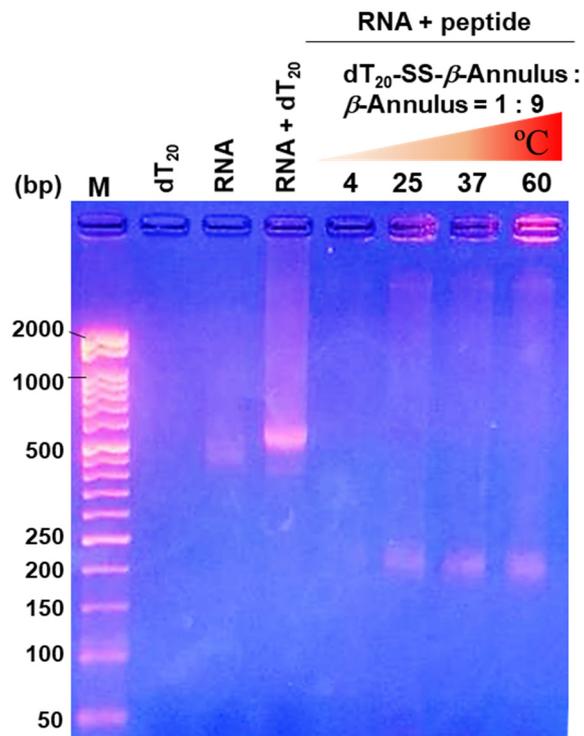
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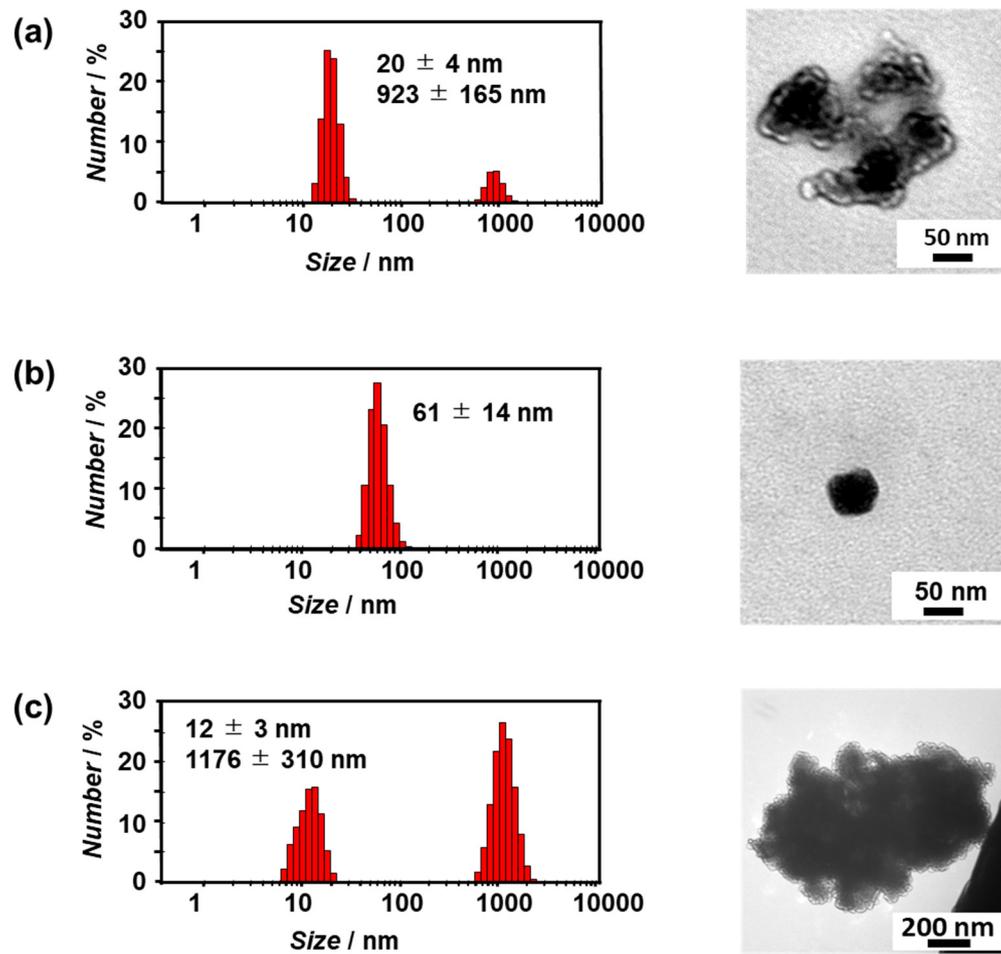
**Figure S1.** Concentration dependence of size distribution obtained from DLS for the aqueous solution of dT<sub>20</sub>-SS- $\beta$ -annulus in PBS (pH7.4) at 25°C.



**Figure S2.** Size-distributions obtained from DLS and TEM images for co-assembly peptides (dT<sub>20</sub>-SS-β-annulus:β-annulus = 1:4.5 (a), 1:2 (b), and 1:1 (c) in water at 25°C.



**Figure S3.** Gel shift assay obtained after hybridization of co-assembly peptides and mCherry mRNA in PBS (pH 7.4) incubated at various temperatures for 10-30 minutes. M : DNA marker.



**Figure S4.** Size-distributions obtained from DLS and TEM images for co-assembly peptides (dT<sub>20</sub>-SS-β-annulus:β-annulus = 1:9) and mCherry mRNA in PBS buffer (pH7.4) obtained after incubation at 4°C (a), 37°C (b) and 60°C (c) for 10-30 minutes.