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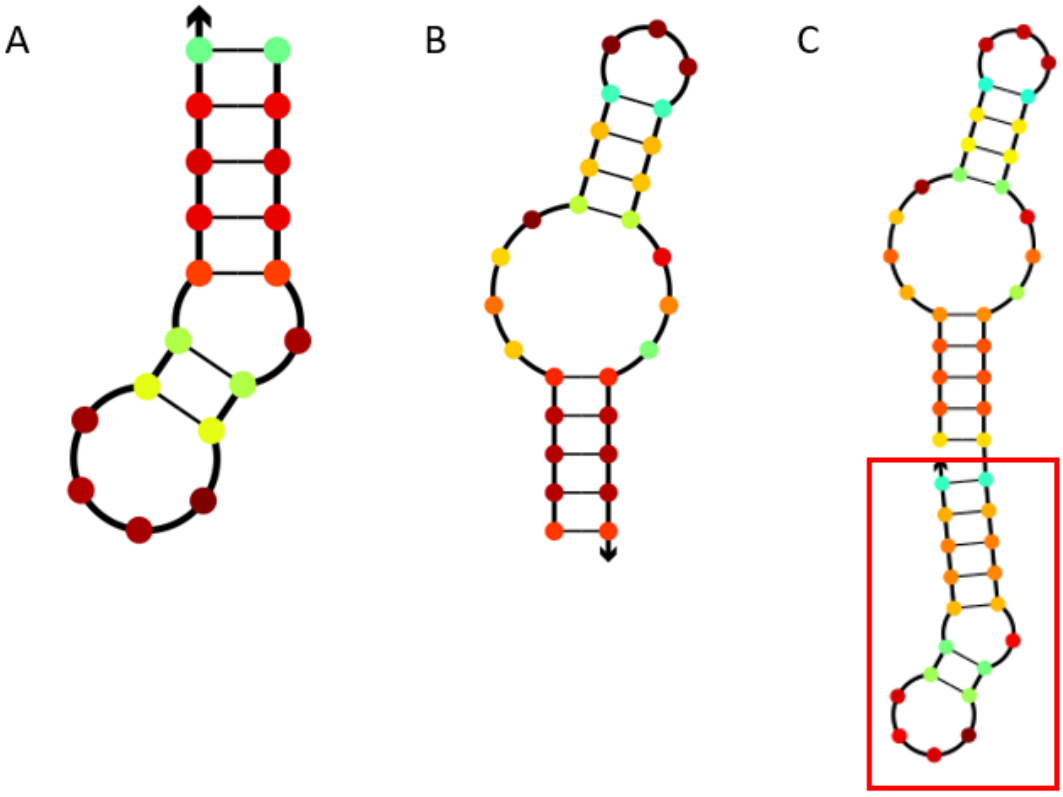

Figure S1. DNA secondary structures calculated by NUPACK[1, 2] of: A. TR DNA activator, B. Malachite green DNA aptamer, and C. Malachite Green DNA aptamer conjugated to TR DNA activator. (Red box indicates the TR DNA part.)

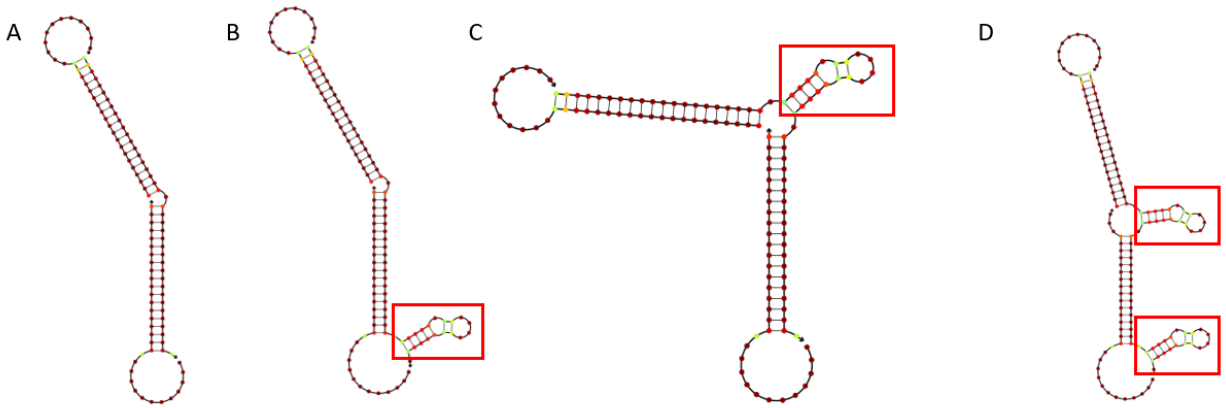

Figure S2. DNA tweezer secondary structures calculated by NUPACK[1, 2] of: A. the i-switch tweezer without the TR DNA activator sequence, B. the i-switch tweezer including the TR DNA activator at 3' end of O3, C. the i-switch tweezer with the addition of TR DNA activator at O3 hinge, and D.the i-switch tweezer with the addition of TR DNA at both the 3' end and O3 hinge. (Red boxes indicate TR DNA part.)

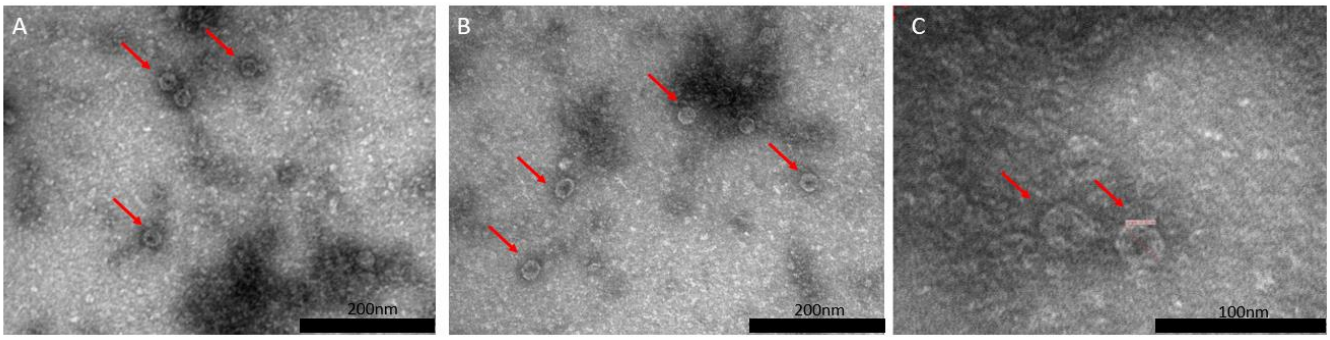

Figure S3. Transmission electron micrographs of ssDNA-VLPs NC expressed with the maturase protein encapsulating TR DNA (for more details regarding the maturase protein see the Methods section). (Red arrows indicate ssDNA-VLPs NC.)

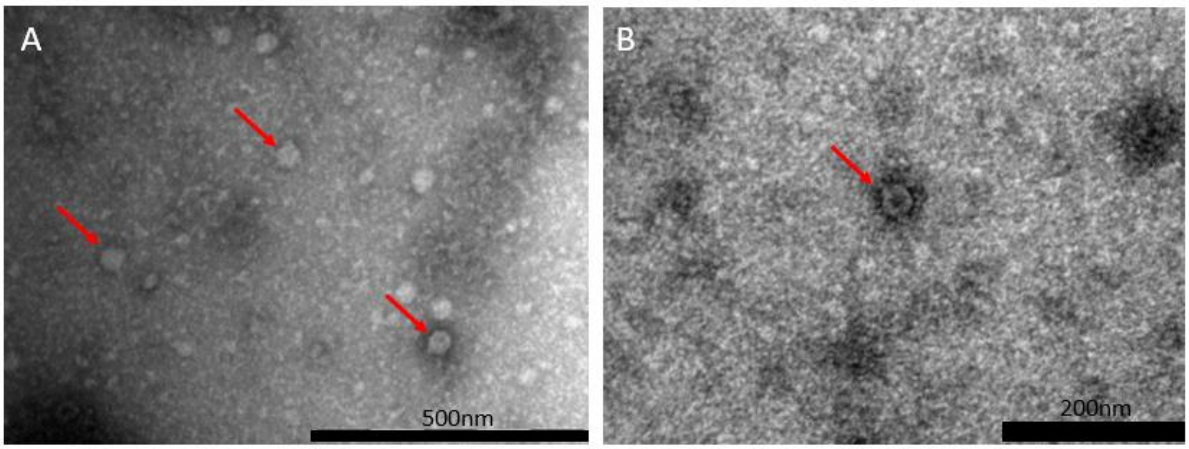

Figure S4. TEM images of ssDNA-VLPs NC encapsulating the TR DNA activator sequence. (Red arrows indicate ssDNA-VLPs NC.)

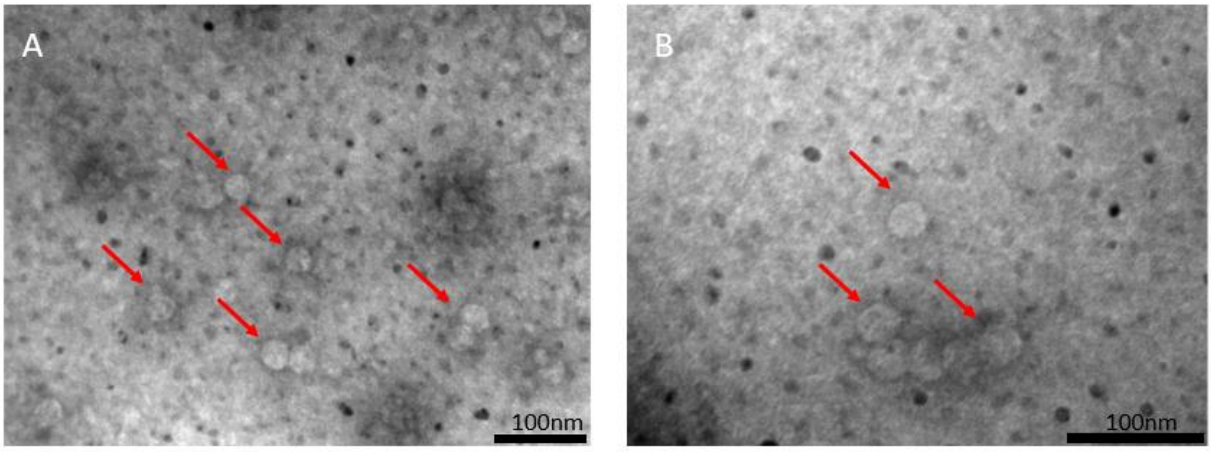

Figure S5. TEM images of ssDNA-VLPs NC expressed with the maturase protein encapsulating MGA conjugated to TR DNA activator. (Red arrows indicate ssDNA-VLPs NC.)

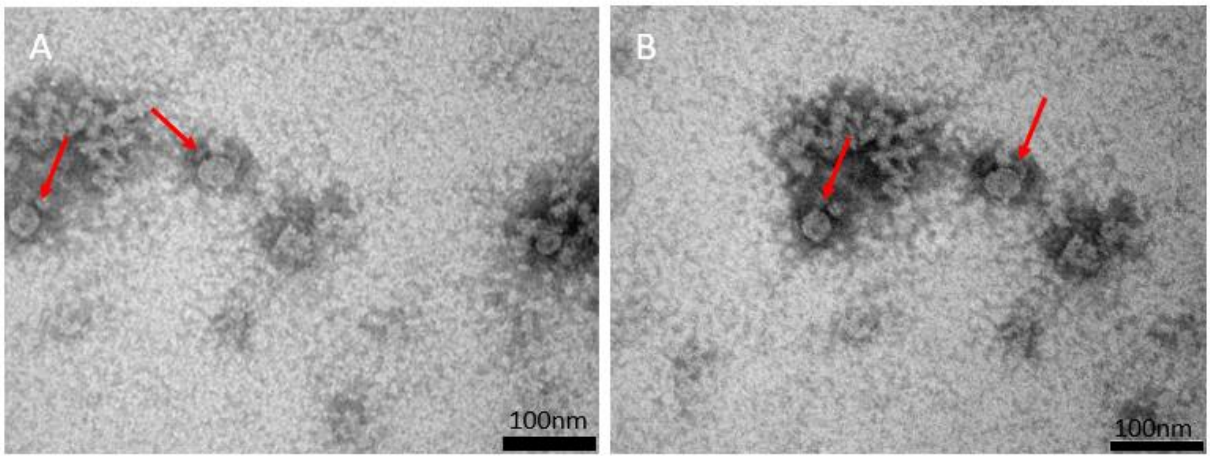

Figure S6. TEM images of ssDNA-VLPs NC encapsulating MGA conjugated to the TR DNA activator. (Red arrows indicate ssDNA-VLPs NC.)

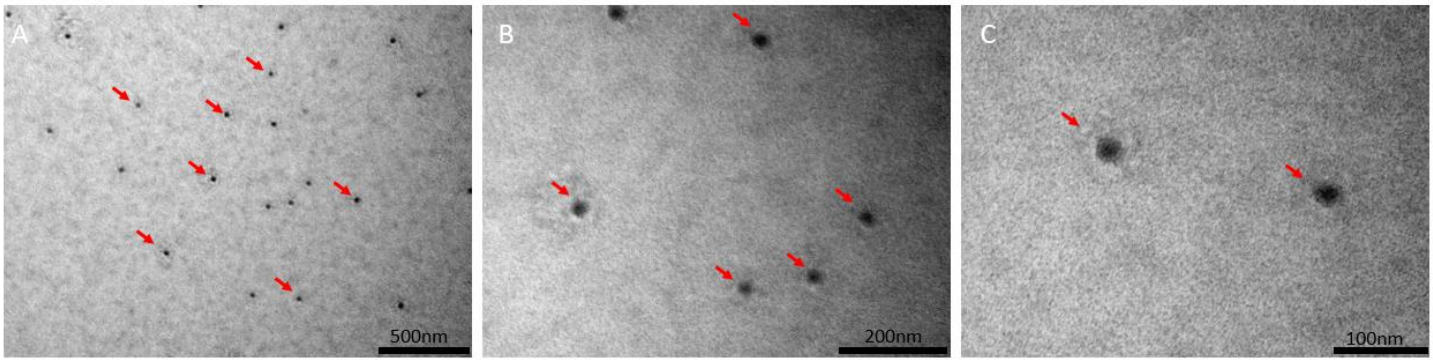

Figure S7. TEM images of ssDNA-VLPs NC expressed with the maturase protein encapsulating the i-switch tweezer containing the TR DNA activator sequence at the 3’ end of O3. (Red arrows indicate ssDNA-VLPs NC.)

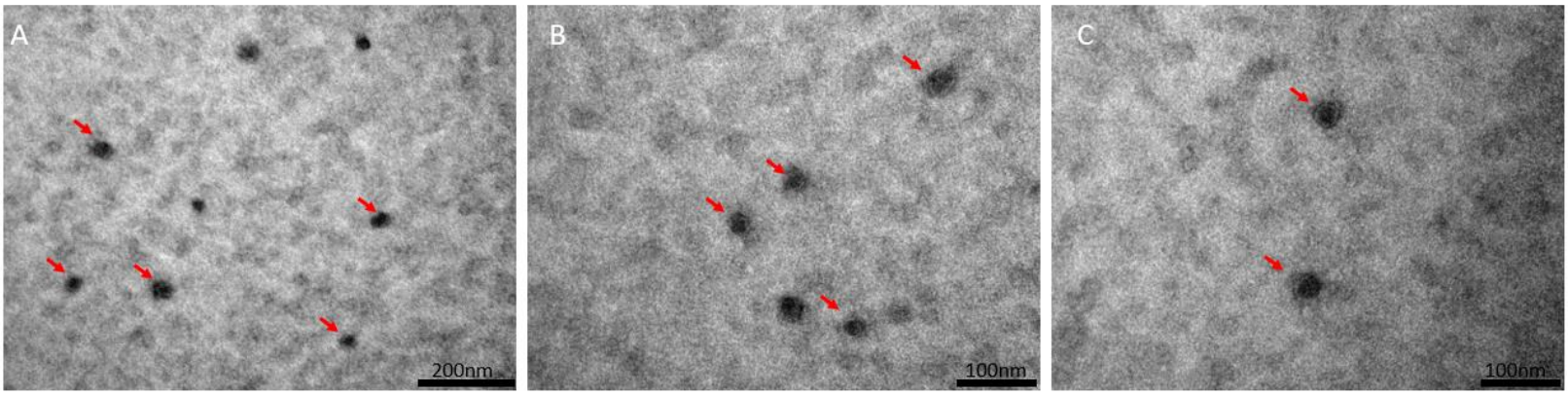

Figure S8. TEM images of ssDNA-VLPs NC expressed with the maturase protein encapsulating the i-switch tweezer containing the TR DNA sequence at the O3 hinge. (Red arrows indicate ssDNA-VLPs NC.)

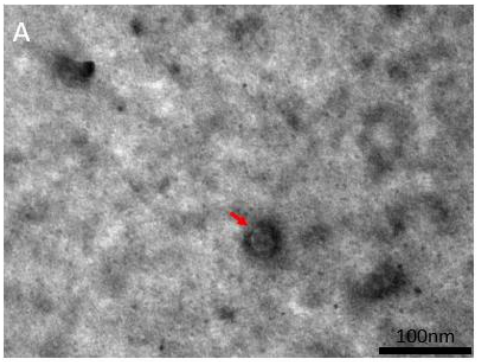

Figure S9. TEM images of ssDNA-VLPs NC expressed with the maturase protein encapsulating the i-switch tweezer containing the TR DNA sequence at 3’ end and hinge of O3. (Red arrows indicate ssDNA-VLPs NC.)

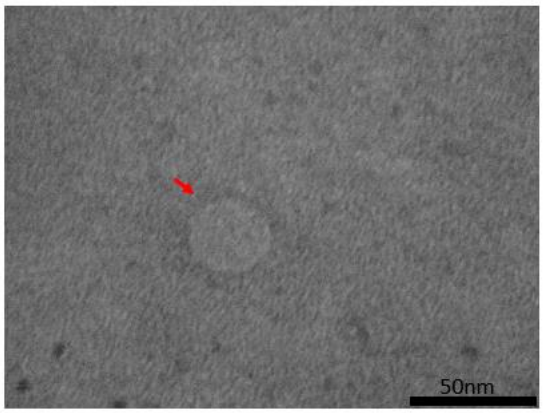

Figure S10. TEM image of ssDNA-VLPs NC encapsulating i-switch tweezer containing the TR DNA sequence at O3 hinge. (Red arrows indicate ssDNA-VLPs NC.)

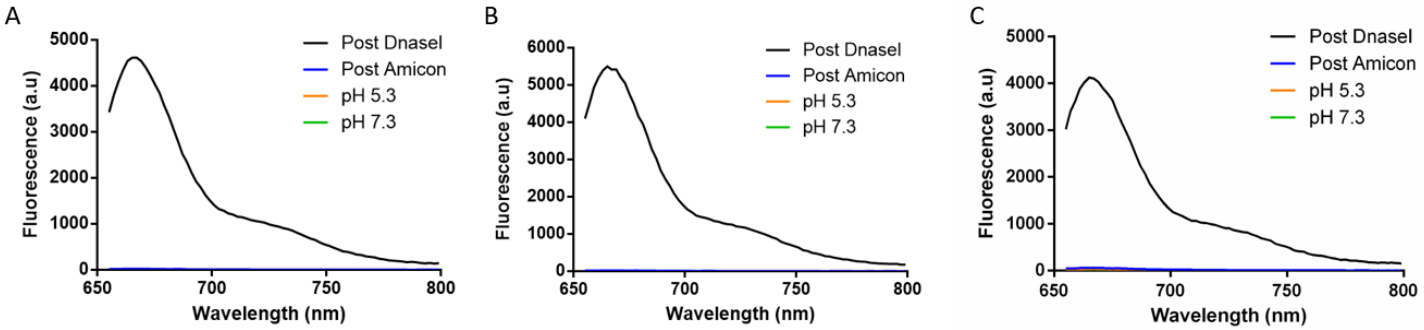

Figure S11. Fluorescence spectra of the unencapsulated i-switch tweezer varients containing the TR DNA activator sequence at: A. 3' end of O3, B. O3 hinge, and C. both at the 3' end and the hinge of O3. Following treatment with DNase I and filtration with Amicon, the fluorescence signal is not detected (for more information see the Methods section).

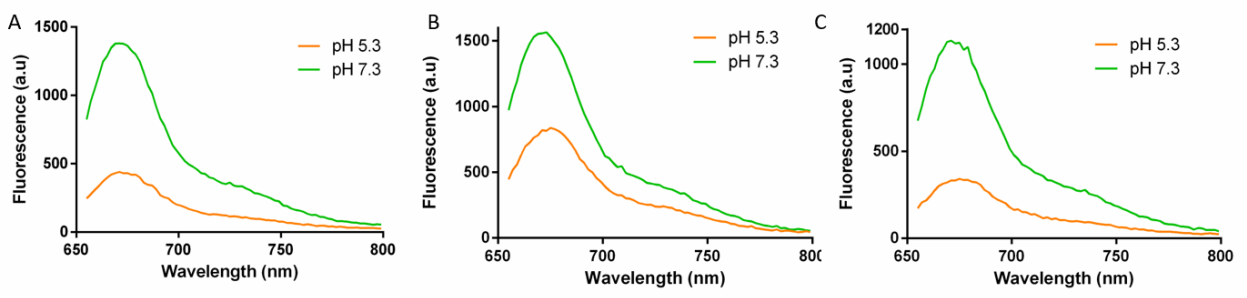

Figure S12. Fluorescence spectra of the ssDNA-VLPs NC expressed with the maturase protein encapsulating the different i-switch tweezer variants containing the TR DNA activator sequence at: A. 3’ end of O3, B. O3 hinge, and C. both at the 3’ end and the hinge of O3. The spectra were measured following treatment with DNase I and filtration using amicon.

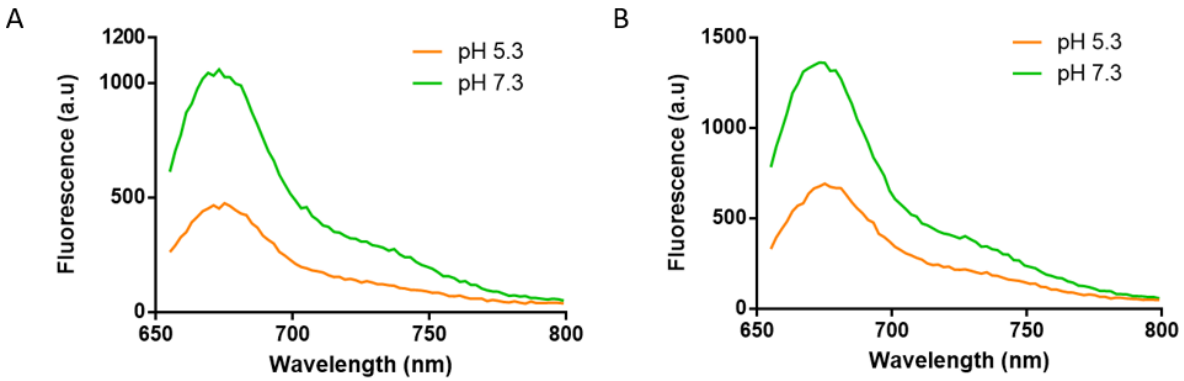

Figure S13. Fluorescence spectra of the ssDNA-VLPs NC encapsulating the different i-switch tweezer variants containing the TR DNA activator sequence at A. 3’ end of O3 and B. O3 hinge. The spectra were measured following treatment with DNase I and filtration using amicon.

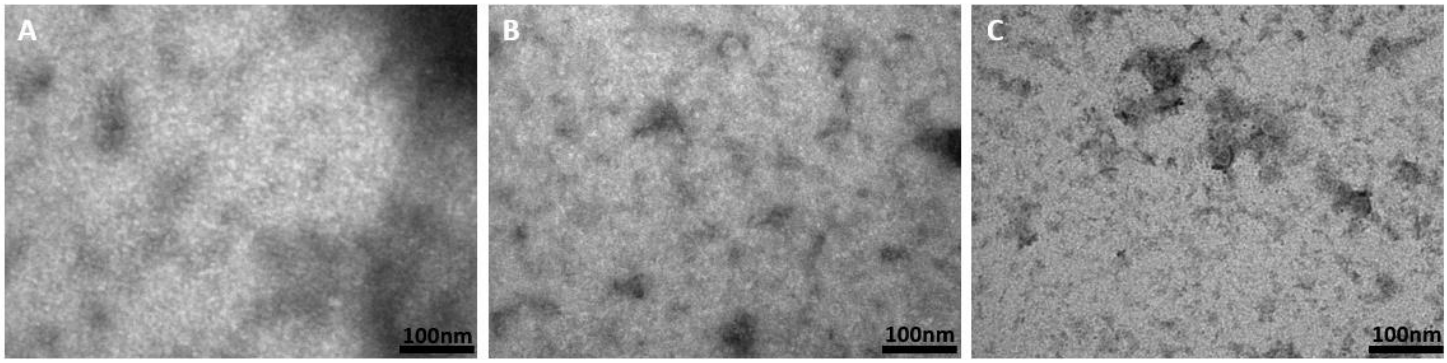

Figure S14. TEM images of the *in vivo* system controls. A. Expression of the ssDNA without the expression of MS2 CPs. B. Expression of the MS2 CPs without the expression of the ssDNA. C. Expression of the MS2 CPs and the ssDNA without the TR DNA activator sequence.

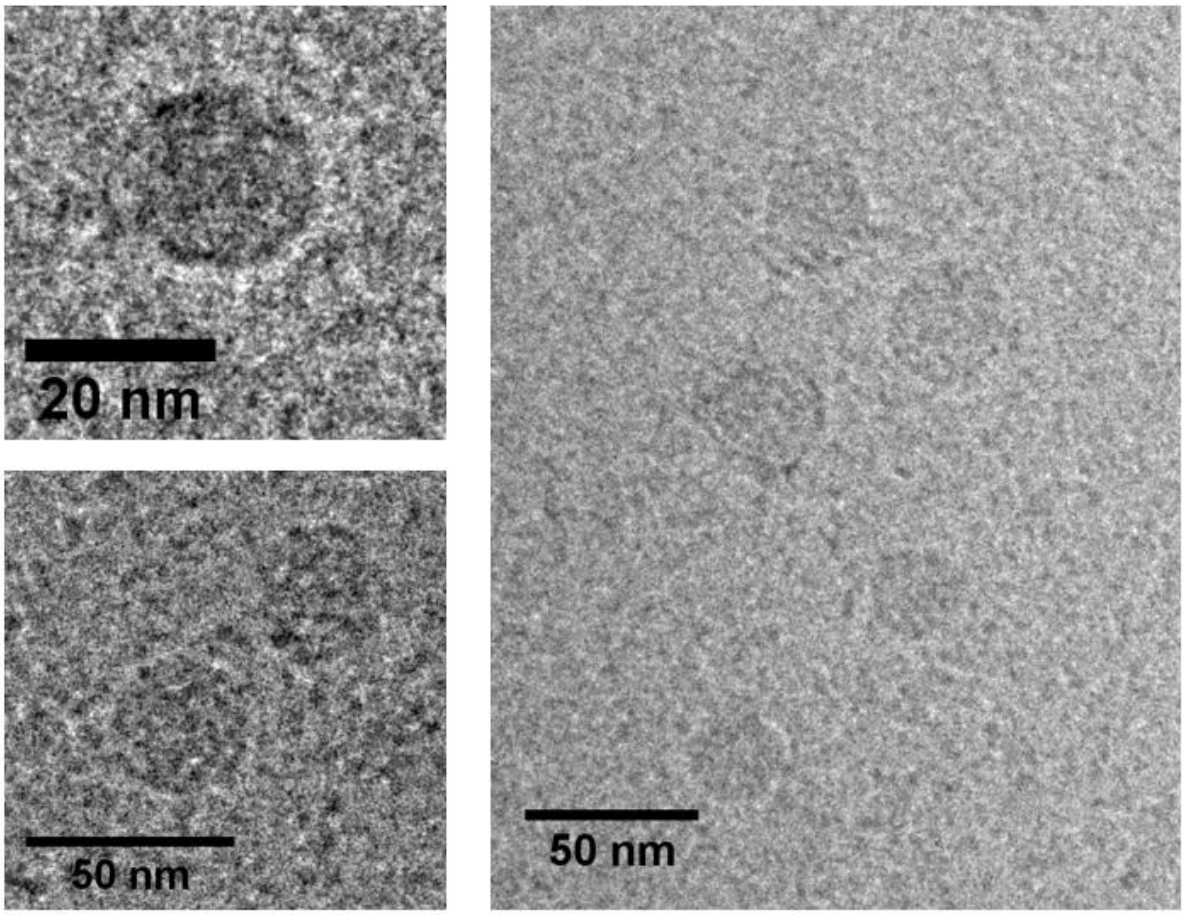

Figure S15. Cryo -TEM images of the ssDNA-VLPs NC produced *in vivo*.

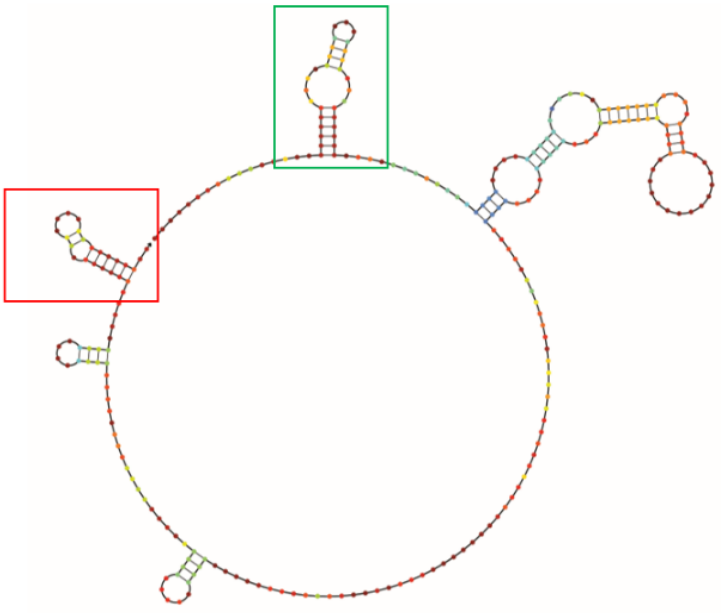

Figure S16. DNA secondary structures calculated by NUPACK[1, 2] of ssDNA encoding for the TR DNA and MGA. (Red box indicates on the TR DNA structure; Green box indicates on the MGA structure).

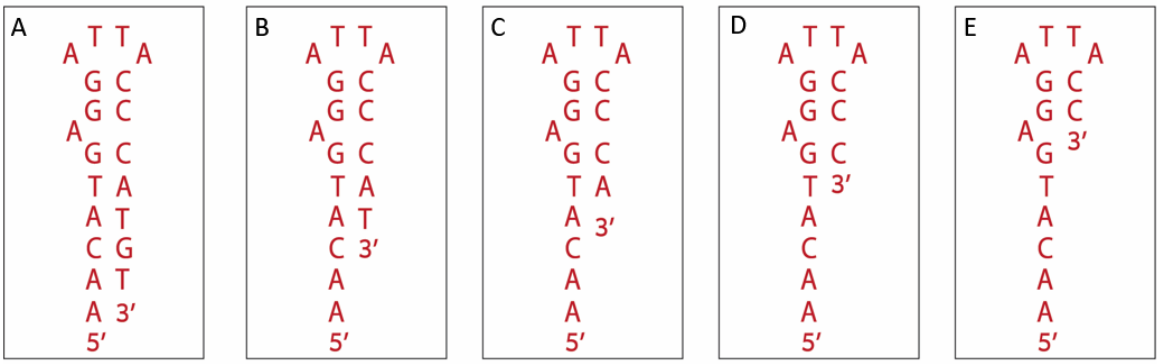

Figure S17. DNA sequences of the TR DNA deletion variants. A. WT TR DNA. B. 2-nt deletion. C. 3-nt deletion. D. 4-nt deletion. E. 5-nt deletion.

Table S1. DNA sequences.

Part	Sequence
TR DNA	ACATGAGGATCACCCATGT
MGA	CTCAGATCTAACCTTGTTAAATTGAG
TR DNA MGA	CCTCAGATCTAACCTTGTTAAATTGAGGACATGAGGATCACCCATGT
O1	/5Cy5/CCCCAACCCCAATACATTTTACGCCTGGTGCC
O2	CCGACCGCAGGATCCTATAAAACCCCAACCCC/3IAbRQSp/
O3 with TR at 3' end	TTATAGGATCCTGCGGTCGGAGGCACCAGGCGTAAAATGTAACATGAGG ATCACCCATGTC
O3 with TR at the hinge	TTATAGGATCCTGCGGTCGGAACATGAGGATCACCCATGTGGGCACCAG GCGTAAAATGTA
O3 with TR at 3' end and the hinge	TTATAGGATCCTGCGGTCGGACATGAGGATCACCCATGTGGCACCAGG CGTAAAATGTAACATGAGGATCACCCATGTC
Maturase and CP dimer gblock	ACGACTCACTATAGGGGAATTGTGAGCGGATAACAATTCCCCTGTAGAA ATAATTTTGTTTAACTTTAATAAGGAGATATACCATGGTGGCTATCGCTGT AGGTAGCCGGAATTCCATTCCTAGGAGGTTTGACCTGTGCGAGCTTTTA GTACCCTTGATAGGGAGAACGAGACCTTCGTCCCCTCCGTTCGCGTTTA CGCGGACGGTGAGACTGAAGATAACTCATTCTCTTTAAAATATCGTTCGA ACTGGACTCCCGGTCGTTTTAACTCGACTGGGGCCAAAACGAAACAGTG GCACTACCCCTCTCCGTATTCACGGGGGGCGTTAAGTGTCACATCGATA GATCAAGGTGCCTACAAGCGAAGTGGGTCATCGTGGGGTCGCCCGTAC GAGGAGAAAGCCGGTTTCGGCTTCTCCCTCGACGCACGCTCCTGCTAC AGCCTCTTCCCTGTAAGCCAGAACTTGACTTACATCGAAGTGCCGCAGA ACGTTGCGAACCGGGCGTCGACCGAAGTCCTGCAAAAGGTCACCCAGG GTAATTTTAACCTTGGTGTTGCTTTAGCAGAGGCCAGGTCGACAGCCTC ACAACTCGCGACGCAAACCATTGCGCTCGTGAAGGCGTACACTGCCGC TCGTCGCGGTAATTGGCGCCAGGCGCTCCGCTACCTTGCCCTAAACGA AGATCGAAAGTTTCGATCAAAACACGTGGCCGGCAGGTGGTTGGAGTTG CAGTTCGGTTGGTTACCACTAATGAGTGATATCCAGGGTGCCTATGAGA TGCTTACGAAGGTTCACCTTCAAGAGTTTCTTCCTATGAGAGCCGTACGT CAGGTCGGTACTAACATCAAGTTAAATGGCCGTCTGTCGTATCCAGCTG CAAACTTCCAGACAACGTGCAACATATCGCGACGTATCGTGATATGGTTT TACATAAACGATGCACGTTTGGCATGGTTGTCGTCTCTAGGTATCTTGAA CCCACTAGGTATAGTGTGGGAAAAGGTGCCTTTCTCATTCGTTGTCGAC TGGCTCCTACCTGTAGGTAACATGCTCGAGGGCCTTACGGCCCCCGTG GGATGCTCCTACATGTCAGGAACAGTTACTGACGTAATAACGGGTGAGT CCATCATAAGCGTTGACGCTCCCTACGGGTGGACTGTGGAGAGACAGG GCACTGCTAAGGCCCAAATCTCAGCCATGCATCGAGGGGTACAATCCGT ATGGCCAACAACTGGCGCGTACGTAAAGTCTCCTTTCTCGATGGTCCAT

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CP dimer

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r_Oligo TR DNA 2-nt deletion	CTTCCGGCGCTAATTTAAGGACCATTGCGAGTCTAGATTGGAACAATTTA ACTCGCTCTTTCCTACAGCCCGTTAGTCCACGCTGTTAGATAGCGCGAA GGCAGTTTGGGGATTTGGCCTACTATCTGGAGTGGAGGGGCGGGTTAT GACTTTAGAGTAATTATGCGTATGGGGGTGATATGTGTGCGTTAGTGGT GTAATCGTGTTACTTATTAGTAGCATGCCCTCTTTTGTAAGATTTGGGTG TACTCCTAGTGGGTA
r_Oligo TR DNA 3-nt deletion	CTTCCGGCGCTAATTTAAGGACCATTGCGAGTCTAGATTGGAACAATTTA ACTCGCTCTTTCCTACAGCCCGTTAGTCCACGCTGTTAGATAGCGCGAA GGCAGTTTGGGGATTTGGCCTACTATCTGGAGTGGAGGGGCGGGTTAT GACTTTAGAGTAATTATGCGTATGGGGGTGATATGTGTGCGTTAGTGGT GTAATCGTGTTACTTATTAGTAGCATGCCCTCTTTTGTAAGATTTGGGTG TACTCCTAGTGGGT
r_Oligo TR DNA 4-nt deletion	CTTCCGGCGCTAATTTAAGGACCATTGCGAGTCTAGATTGGAACAATTTA ACTCGCTCTTTCCTACAGCCCGTTAGTCCACGCTGTTAGATAGCGCGAA GGCAGTTTGGGGATTTGGCCTACTATCTGGAGTGGAGGGGCGGGTTAT GACTTTAGAGTAATTATGCGTATGGGGGTGATATGTGTGCGTTAGTGGT GTAATCGTGTTACTTATTAGTAGCATGCCCTCTTTTGTAAGATTTGGGTG TACTCCTAGTGGG
r_Oligo TR DNA 5-nt deletion	CTTCCGGCGCTAATTTAAGGACCATTGCGAGTCTAGATTGGAACAATTTA ACTCGCTCTTTCCTACAGCCCGTTAGTCCACGCTGTTAGATAGCGCGAA GGCAGTTTGGGGATTTGGCCTACTATCTGGAGTGGAGGGGCGGGTTAT GACTTTAGAGTAATTATGCGTATGGGGGTGATATGTGTGCGTTAGTGGT GTAATCGTGTTACTTATTAGTAGCATGCCCTCTTTTGTAAGATTTGGGTG TACTCCTAGTGG

1. Dirks, R. M.; Pierce, N. A., A partition function algorithm for nucleic acid secondary structure including pseudoknots. *Journal of computational chemistry* **2003,** *24* (13), 1664-77.

2. Dirks, R. M.; Pierce, N. A., An algorithm for computing nucleic acid base-pairing probabilities including pseudoknots. *Journal of computational chemistry* **2004,** *25* (10), 1295-304.