

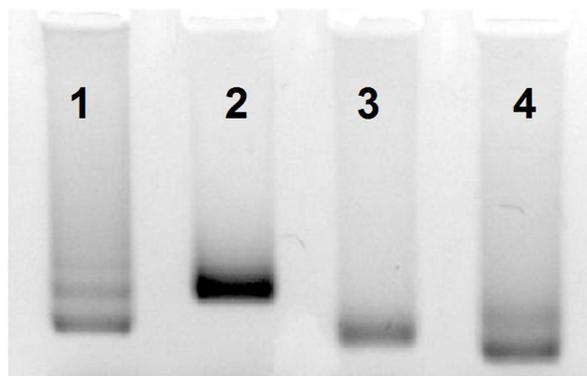
Supplemental Information for:

Spherical Nucleic Acids as a Divergent Platform for Synthesizing RNA-Nanoparticle Conjugates Through Enzymatic Ligation

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Table S1. RNA and DNA sequences used in the assembly and ligation of the ligated siRNA SNAs.

	DNA	
1	DNA anchor (1)	5'-SH-TTTTTTTTTTTAATTCACCCAAC-3'
2a	DNA Bridge (2a) eGFP	5'-GCTTGCCCTCCCGTTGGGTGAATT-3'
2b	DNA Bridge (2b) GAPDH	5'-GGGTTGTCTCCCGTTGGGTGAATT-3'
RNA		
3a	eGFP S* (3a)	5'-GGGAGGGCAAGCTGACCCTGAAGTTC-3'
4a	eGFP AS	5' GAA CUU CAG GGU CAG CUU GCC 3'
3b	GAPDH S* (3b)	5'-GGGAGACAACCCACUUAAGUGGAGAUUGUUGCCAUCA-3'
4b	GAPDH AS	5'-GGCCAUCCACAGUCUUCUG-3'
		* indicate RNA made via <i>in vitro</i> transcription with T7 RNA polymerase



Photocleavable anchor sequence: 5'-SH-T30-PC-TTTTTAATTCACCCAAC-3'

Figure S1. Agarose analysis of SNAs functionalized with various DNA anchors. Lane 1) SNAs functionalized with a PC DNA anchor, containing a photocleavable (PC) base that has been inserted towards the 3' end of the sequence. Total PC DNA anchor length is 47 bases. Lane 2) SNAs with the PC linker post ligation with GFP sense strand RNA (3a) in which a gel shift is apparent. Lane 3) Particles from lane 2 post treatment with 365 nm light and washing with 8 M urea to remove freed oligonucleotides. The particles return to roughly the original size of the particles in lane 1 due to cleavage of the GFP RNA sense strand. Lane 4) SNAs functionalized with the standard DNA anchor 1 (lacks PC linker modification, shorter in length than the PC anchor by 25 bases).

Table S2. Dynamic light scattering of SNAs pre and post ligation. Average size as well as overall size distributions for representative SNA structures are shown below. The calculated average is based on a 0.34 nm spacing per oligonucleotide base. Total base pair (bp) lengths are indicated. The overall polydispersity of the constructs is also included.

Sample	Calc avg size (nm)	Observed z avg (nm)	bp length*	PDI
Au SNA (anchor)	28	33 ± 1	22	0.180
Au SNA (Bridge 2a hybridized)	36	38 ± 1	34	0.175
SNA post ligation to GFP siRNA (3a)	54	58 ± 3	61	0.213

* total length of oligonucleotides, including hybridized regions, extending from particle surface.