

F1	ΨACATCTCACGTTAGGCCATCCATACTCGAGCCGTTCTCTTTTCTTATCTAGAATGA GTGACTGCTGCGCTG
F2	ΨACCATTAGACCAGCGCAGCATTTCTTTCTGATGGCCTAA
F3	GAACGGCTCGAGTATGTCTTCTTTTGTCACTCATTCTAGAT
HA	GTAAGGATAGAGTGGACACCGCAGACAAGGCGATCTGGCGCTCCTGCCTTCATGCG TCATAGCGT
HB	GCATGAAGGCACCGATACACTGTTATTCCAGT
HC	CAGTGTATCGGACTCCTGAATCACACGGATCACCAGGCCGACGAGAGGACTACTTC GATCCTATTGTGCTCTGT
HD	ATAGGATCGAAGTAGTGGAGTGGAGCGCCAGATCGCCTTGTCTGCGGACGCTCGT ACGAGCGTGGTATTTTATACCTGTCCTGATCCGTGTGATTACCTCTCGTCGGCCTG
HE	GACTCTATCCTTAC
SS1A	CAGCCAATCGTGAGATGTACGCTATGAC
SS1B	CGCAAGGTCGTGAGATGTACTGGAATAA
SS2B	GGCGTTGAGTCTAATGGTACTGGAATAA
SS2C	GCCGAACCGTCTAATGGTACAGAGCACA
US1A	BGTCATAGCGTACATCTCACGATTGGCTG
US1B	BTTATTCCAGTACATCTCACGACCTTGCG
US2B	BTTATTCCAGTACCATTAGACTCAACGCC
US2C	BTGTGCTCTGTACCATTAGACGGTTCGGC

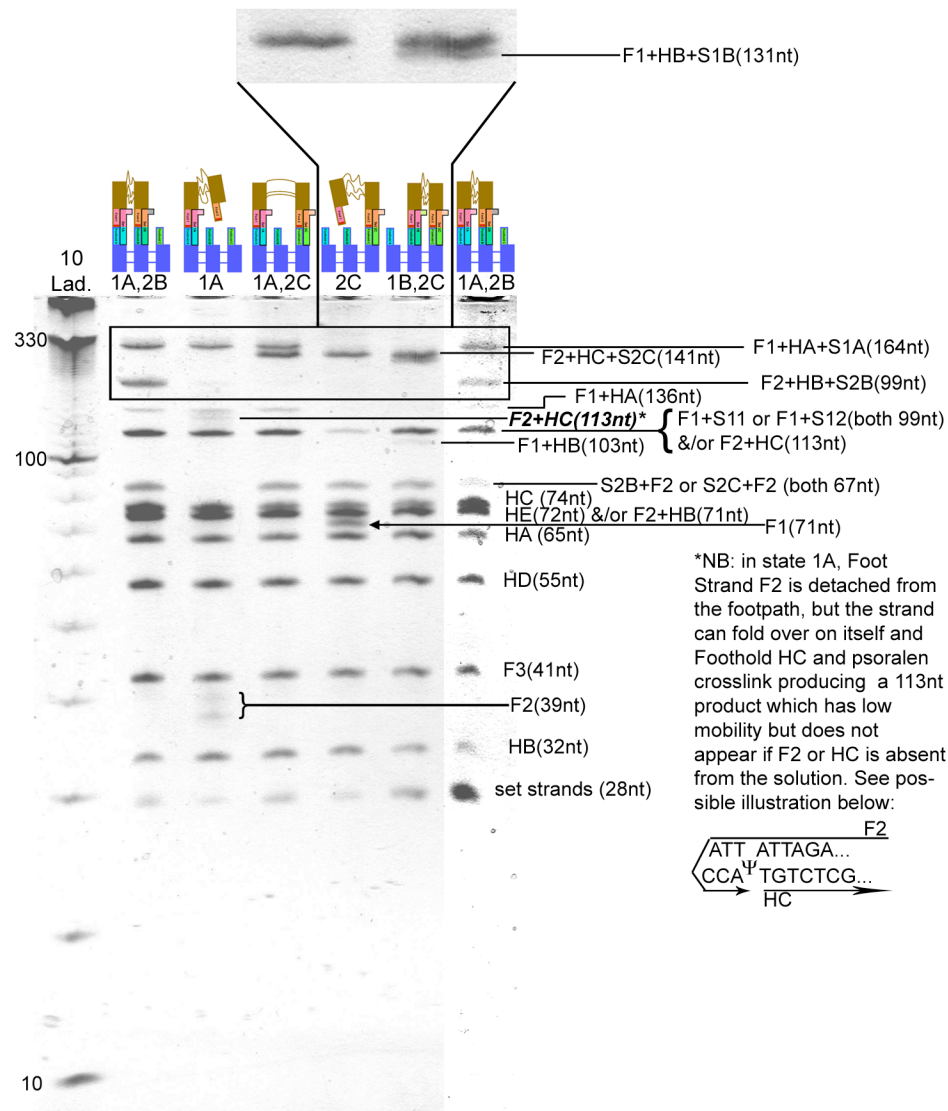
Supplementary Table 1. All strand sequences are listed 5' to 3', Biped strands are labeled F1,

F2, and F3, the triple crossover strands are denoted by HA-HE, the set strands are named SS1A,

SS1B, SS2B and SS2C. and the unset strands are indicated by US1A, US1B, US2B and US2C.

Psoralen is denoted by **Ψ**, and biotin is denoted by **B**. Psoralen was connected to the phosphate

backbone *via* a 2 carbon chain: Glen Research, Psoralen C2 Phosphoramidite.



Supplementary Figure 6. Detailed analysis of the 13% denaturing gel shown in Figure 5 of the text. A plus sign, '+,' indicates psoralen cross-linking of strands. The psoralen complexes consisting of a foot strand and a foothold strand without a set strand (Figure 3c), are similar to a linear, single strand of DNA, and they run accordingly. The psoralen complexes which include the set strands (see Figures 3b, and 3d), have a fundamentally different structure from a linear strand, and Ferguson analysis shows they all have substantially higher friction constants than linear strands with the same number of nucleotides in a denaturing gel.

