

Facilitation of DNA Self-Assembly by Relieving the Torsional Strains between Building Blocks

Table s1 The sequences of PX motifs

Stands	Bases(mer)	Base sequences(from 5' to 3')
PX ₅₅ (a ₁)	80	TCGCAGGGACATTCAAGGCTAAAGGACAGATCGAGATCATGGCTA GAGTGGCTGCGATGAAGGTGTAGAGTCAGGAAAGC
PX ₅₅ (a ₂)	80	GCACTTGACTTCCTTGACTCTGAATCTTCACCACTCTAGCCATGA TCTCGAAGTGCATCTGTTCTTAGCCTACACGTCC
PX ₅₅ (b ₁)	84	TCGCAGGAGACATTCAAGGCTAAAGGACAGATTCGAGATCATGGC TAGAGTGGCTGCGATGGAAGGTGTAGAGTCAGGAAAGGTC
PX ₅₅ (b ₂)	84	GCACTTGACCTTCCTTGACTCTGAATCTTCACCACTCTAGCCAT GATCTCGAAGTGCATCTGTTCTTAGCCTACACGTCTC
PX ₆₄ (a ₁)	80	TCGCAGGAGACATCAGGCTTCTAGGACAGATCGAGATCATGGCTA GAGTGGCTGCGATGAAGGGTAGAGGTAGAGTCAGAAAGGTC
PX ₆₄ (a ₂)	80	GCACTTGACCTTCCTGACCTCTGATCTTCACCACTCTAGCCAT GATCTCGAAGTGCATCTGTTCTAAAGCCTACCGTCTC
PX ₆₄ (b ₁)	82	TCGCAGGAGACATCAGGCTTCTAGGACAGATTCGAGATCATGGCT AGAGTGGCTGCGATGAAGAGGTAGAGGTAGAAAGGTC
PX ₆₄ (b ₂)	82	GCACTTGACCTTCCTGACCTCTGATTCTTCACCACTCTAGCCATG ATCTCGAAGTGCATCTGTTCTAAAGCCTACCGTCTC
PX ₉₅ (a ₁)	92	TGCCGACCTAGACTGCTTACCTCCCTCTGATCATTCTGGTTGAC ATTGCGACACTCGGCATCTGGACCTTGTACTGTGACATTCTGCT G
PX ₉₅ (a ₂)	92	CGAGCACAGCACAGAGTCACAGTAAGCAGTTCCAGAGTGTGCGCA ATGTCAACCAGATGCTGAATGATGAATGGGAAGGTAACAAGGC TAGG
PX ₉₅ (b ₁)	88	TGCCGACTATACTGCACACCTCGCTCTGATCATTCTGGTAGACA TTGGGACACTCGGCATCTGACCTTGTGACTGTGACATTCTGCT
PX ₉₅ (b ₂)	88	CGAGCAAGCACAGAGTCACAGTCAGCAGTTCAGAGTGTCCCAAT GTCTACCAGATGCTCGATGATGAATGCGAAGGTGTCAAGGATAG

AFM of the PX motifs self-assembly on Mica:

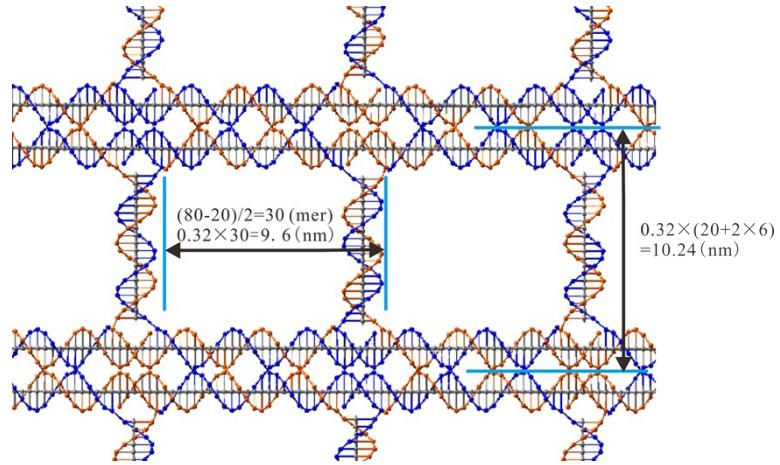


Fig. S1 Schematic diagram of lattice and designed length of lattice. All results are consistent with the design within the margin of error, taking PX₅₅ (a) for example about theoretical calculation.

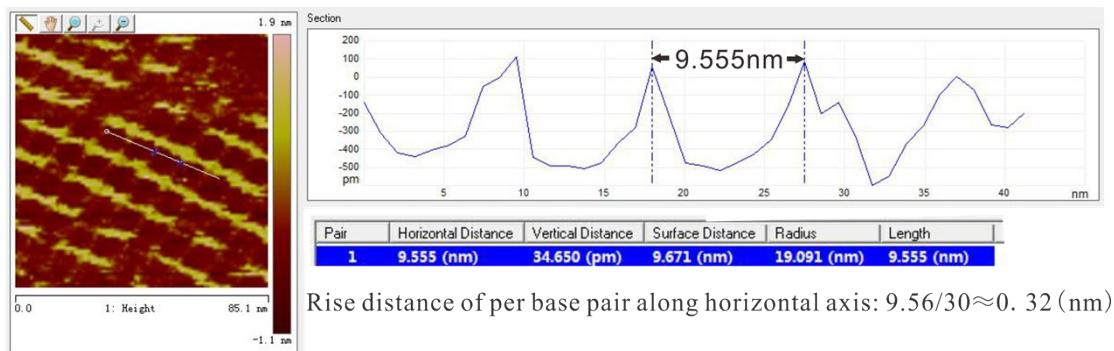


Fig. S2 Analysis of AFM DNA lattice self-assembly from PX₅₅ (a) motif.

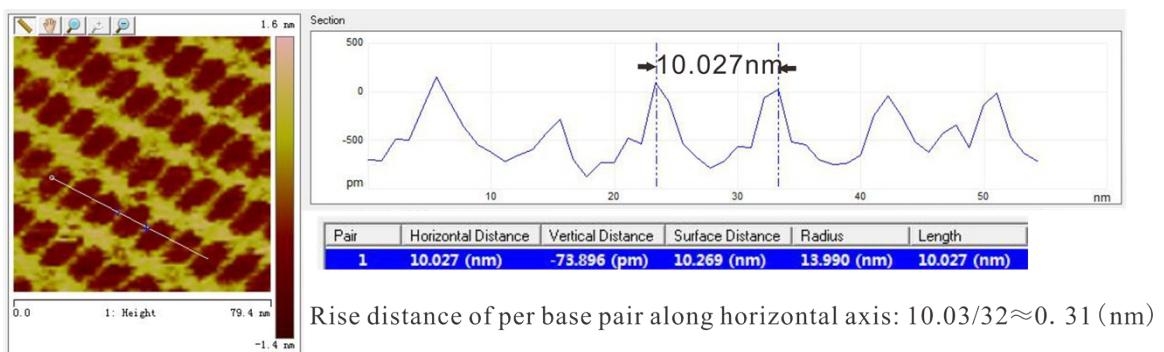


Fig. S3 Analysis of AFM DNA lattice self-assembly from PX₅₅ (b) motif.

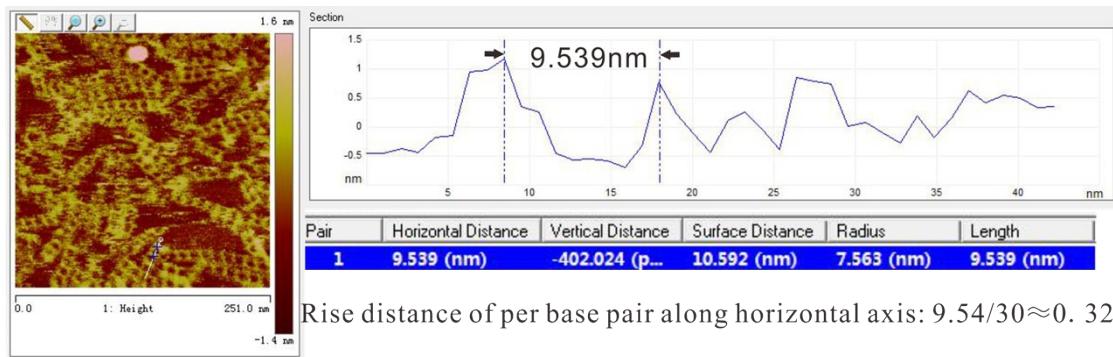


Fig. S4 Analysis of AFM DNA ladder self-assembly from PX₆₄ (a) motif.

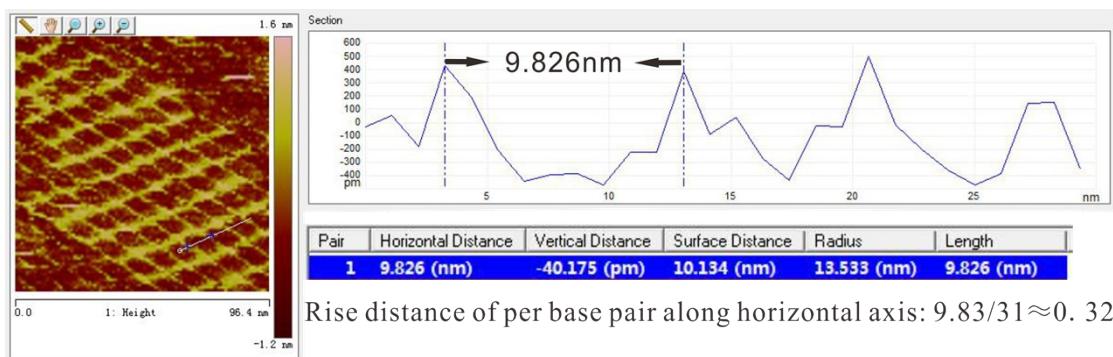


Fig. S5 Analysis of AFM DNA lattice self-assembly from PX₆₄ (b) motif.

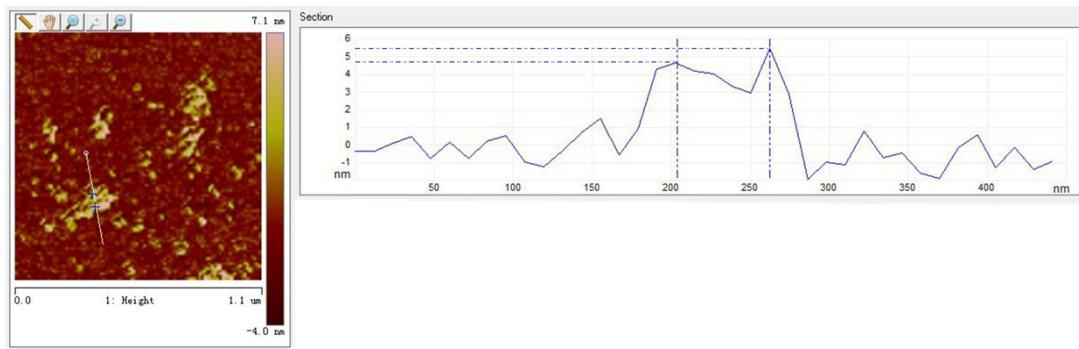


Fig. S6 AFM image of PX₉₅ (a) motif self-assembly and corresponding cross-section analysis. From the dimensions of the section height, we can observe obviously DNA multimers.

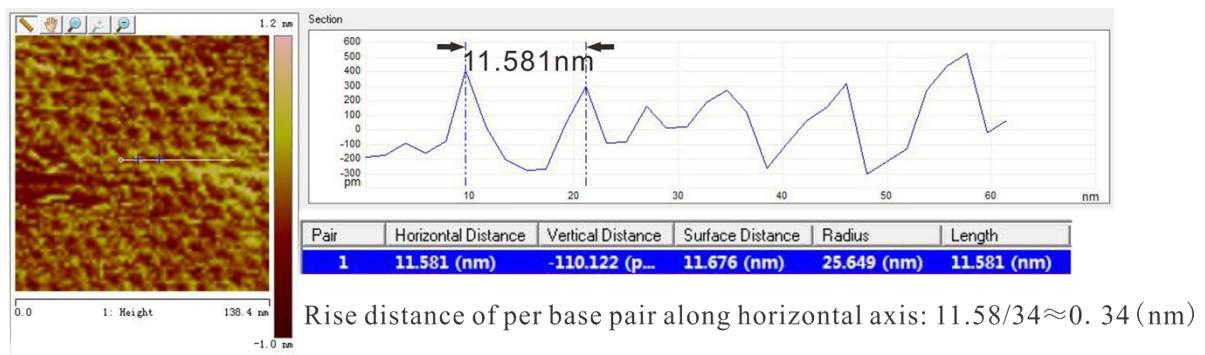


Fig. S7 AFM image of PX₉₅ (b) motif self-assembly and corresponding cross-section analysis.