The Claims defining the Invention are as follows:

1. A composition of two or more engineered nucleic acid sequences forming a scaffold ("NASC"), the NASC composition comprising:

a first engineered nucleic acid component ("NASC-PC1") comprising, in a 5' to 3' direction,

a spacer element 1 comprising a nucleic acid target binding sequence 1,

a repeat element 1 comprising a repeat nucleic acid sequence 1, and

a nucleic acid binding protein binding element 1 comprising a double-stranded nucleic acid binding protein binding sequence 1,

wherein the spacer element 1 is covalently connected with the repeat element 1, and the repeat element 1 is covalently connected with the nucleic acid binding protein binding element 1; and

a second engineered nucleic acid component ("NASC-PC2") comprising, in a 5' to 3' direction,

a spacer element 2 comprising a nucleic acid target binding sequence 2,

a repeat element 2 comprising a repeat nucleic acid sequence 2, and

a nucleic acid binding protein binding element 2 comprising a double-stranded nucleic acid binding protein binding sequence 2,

wherein the spacer element 2 is covalently connected with the repeat element 2, and the repeat element 2 is covalently connected with the nucleic acid binding protein binding element 2;

wherein there is a connection between the repeat nucleic acid sequence 1 and the repeat nucleic acid sequence 2 through hydrogen-bonded base pairs, the connection forms the NASC composition, and the NASC composition is capable of binding a first double-stranded nucleic acid binding protein and a second double-stranded nucleic acid binding protein.

2. The NASC composition of claim 1, wherein the first double-stranded nucleic acid binding protein is a Class 2 Type II CRISPR-Cas9 protein and the second double-stranded nucleic acid binding protein is a Class 2 Type II CRISPR-Cas9 protein.

3. The NASC composition of claim 1 or claim 2, wherein the first double-stranded nucleic acid binding protein and the second double-stranded nucleic acid binding protein are the same Class 2 Type II CRISPR-Cas9 protein.

4. The NASC composition of any one of the preceding claims, wherein

the spacer element 1 further comprises a linker element nucleic acid sequence 3' of the nucleic acid target binding sequence 1 and 5' of the repeat element 1; and

the spacer element 2 further comprises a linker element nucleic acid sequence 3' of the nucleic acid target binding sequence 1 and 5' of the repeat element 1.

5. The NASC composition of claim 4, wherein

the repeat element 1 further comprises, in a 5' to 3' direction, a repeat nucleic acid sequence 1b, a linker element nucleic acid sequence 1-2, and a repeat nucleic acid sequence 1a; and

the repeat element 2 further comprises, in a 5' to 3' direction, a repeat nucleic acid sequence 1aC, a linker element nucleic acid sequence 2-2, and a repeat nucleic acid sequence 1bC;

wherein the repeat nucleic acid sequence 1b and the repeat nucleic acid sequence 1bC are connected through hydrogen-bonded base pairs, and the repeat nucleic acid sequence 1a and the repeat nucleic acid sequence 1aC are connected through hydrogen-bonded base pairs.

6. The NASC composition of claim 5, wherein

the repeat nucleic acid sequence 1b further comprises, in a 5' to 3' direction,

a repeat nucleic acid sequence 1b2,

a bulge nucleic acid sequence 1b1, and

a repeat nucleic acid sequence 1b1;

the repeat nucleic acid sequence 1a further comprises, in a 5' to 3' direction,

a repeat nucleic acid sequence 1a2,

a bulge nucleic acid sequence 1a1, and

a repeat nucleic acid sequence 1a1;

the repeat nucleic acid sequence 1aC further comprises, in a 5' to 3' direction,

a repeat nucleic acid sequence 1a1C,

a bulge nucleic acid sequence 2a2, and

a repeat nucleic acid sequence 1a2C; and

the repeat nucleic acid sequence 1bC further comprises, in a 5’ to 3’ direction,

a repeat nucleic acid sequence 1b1C,

a bulge nucleic acid sequence 2b2, and

a repeat nucleic acid sequence 1b2C;

wherein the repeat nucleic acid sequence 1a1 and the repeat nucleic acid sequence 1a1C are connected through hydrogen-bonded base pairs, the repeat nucleic acid sequence 1a2 and the repeat nucleic acid sequence 1a2C are connected through hydrogen-bonded base pairs, the repeat nucleic acid sequence 1b1 and the repeat nucleic acid sequence 1b1C are connected through hydrogen-bonded base pairs, and the repeat nucleic acid sequence 1b2 and the repeat nucleic acid sequence 1b2C are connected through hydrogen-bonded base pairs.

7. The NASC composition of claim 6, wherein

the linker element nucleic acid sequence 1-2 further comprises, in a 5’ to 3’ direction,

a linker element nucleic acid sequence 1-2-2,

a repeat nucleic acid sequence 1-2a, and

a linker element nucleic acid sequence 1-2-1;

the linker element nucleic acid sequence 2-2 further comprises, in a 5’ to 3’ direction,

a linker element nucleic acid sequence 2-2-1

a repeat nucleic acid sequence 1-2aC, and

a linker element nucleic acid sequence 2-2-2;

wherein the repeat nucleic acid sequence 1-2a and the repeat nucleic acid sequence 1-2aC are connected through hydrogen-bonded base pairs and form a double-stranded nucleic acid region 1-2.

8. The NASC composition of claim 7, wherein

the double-stranded nucleic acid region 1-2 further comprises an effector protein binding site;

the repeat nucleic acid sequence 1-2a further comprises an effector protein binding site nucleic acid sequence 1-2a; and

the repeat nucleic acid sequence 2 further comprises an effector protein binding site nucleic acid sequence 1-2aC;

wherein an effector binding site is formed by hydrogen base-pair bonding between the effector protein binding site nucleic acid sequence 1-2a and the effector protein binding site nucleic acid sequence 1-2aC.

9. The NASC composition of claim 8, wherein the effector protein binding site 1 is a Csy4 protein binding site.

10. The NASC composition of any one of claims 1 to 9, wherein

the repeat nucleic acid sequence 1 further comprises an affinity tag 1; and

the repeat nucleic acid sequence 2 further comprises an affinity tag 2;

wherein the affinity tag 1 is connected with affinity tag 2.

11. The NASC composition of claim 10, wherein the NASC composition comprises RNA, DNA, or RNA and DNA.

12. The NASC composition of claim 11, wherein the NASC-PC2 comprises RNA and DNA.

13. The NASC composition of any preceding claim, further comprising a donor polynucleotide.

14. A nucleic acid/protein composition, comprising:

the NASC composition of any one of the preceding claims; and

a first Cas9 protein and a second Cas9 protein.

15. The nucleic acid/protein composition of claim 14, wherein the first Cas9 protein is the same as the second Cas9 protein, and the first Cas9 protein and the second Cas9 protein are selected from the group consisting of a *Streptococcus pyogenes* Cas9

protein, a *Streptococcus thermophilus* Cas9 protein, a *Staphylococcus aureus* Cas9 protein, and a *Campylobacter jejuni* Cas9 protein.

16. The nucleic acid/protein composition of claim 14, wherein the first Cas9 protein is different from the second Cas9 protein, and the first Cas9 protein and the second Cas9 protein are selected from the group consisting of a *Streptococcus pyogenes* Cas9 protein, a *Streptococcus thermophilus* Cas9 protein, a *Staphylococcus aureus* Cas9 protein, and a *Campylobacter jejuni* Cas9 protein.

17. The nucleic acid/protein composition of claim 16, wherein the first Cas9 protein and the second Cas9 protein are selected from the group consisting of Cas9 protein/Cas9 protein, Cas9 protein /dCas9 protein, dCas9 protein/Cas9 protein, and dCas9 protein/dCas9 protein, respectively.

18. A kit, comprising:

the NASC composition of any one of claims 1-13, or one or more nucleic acid sequences encoding the NASC composition of any one of claims 1-13; and

a buffer.

19. The kit of claim 18, further comprising one or more Cas9 proteins or one or more nucleic acid sequences encoding the one or more Cas9 proteins.

20. The kit of claim 18, further comprising nucleoprotein complexes comprising the NASC composition and one or more Cas9 proteins.