THAT WHICH IS CLAIMED IS:

1. An engineered protein comprising at least two different polypeptides, wherein one of the at least two different polypeptides is a first CRISPR-Cas effector polypeptide that is a first portion of a first Type V CRISPR-Cas effector protein and the first CRISPR-Cas effector polypeptide is devoid of a nuclease domain; and wherein another of the least two different polypeptides is a heterologous polypeptide that is heterologous to the first Type V CRISPR-Cas effector protein and is not a portion of a Type V CRISPR-Cas effector protein.

2. The engineered protein of claim 1, wherein the heterologous polypeptide comprises a first nuclease domain or a portion thereof that is heterologous to the first CRISPR-Cas effector polypeptide.

3. The engineered protein of claim 1, wherein the heterologous polypeptide comprises a target strand nickase domain or a portion thereof.

4. The engineered protein of claim 1, further comprising a second CRISPR-Cas effector polypeptide that comprises a second nuclease domain or a portion thereof.

5. The engineered protein of claim 4, wherein the heterologous polypeptide is heterologous to the second CRISPR-Cas effector polypeptide.

6. The engineered protein of claim 4, wherein the first and second CRISPR-Cas effector polypeptides are each a portion of the same CRISPR-Cas effector protein.

7. The engineered protein of claim 1, wherein the heterologous polypeptide comprises a HNH domain.

8. The engineered protein of claim 5, wherein the first and second CRISPR-Cas effector polypeptides are each a portion of a first CRISPR-Cas effector protein and the heterologous polypeptide is between and/or linked to two amino acids that are two consecutive or nonconsecutive amino acids of the first CRISPR-Cas effector protein.

9. The engineered protein of claim 8, wherein the heterologous polypeptide is positioned in the engineered protein in a location that corresponds to an interdomain linker region of the first CRISPR-Cas effector protein.

10. The engineered protein of claim 1, wherein the heterologous polypeptide comprises an amino acid sequence having at least 70%, 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or more sequence identity to one or more of **SEQ ID NOs:1 or 169-174**.

11. The engineered protein of claim 1, further comprising all or a portion of a wedge domain, a Rec1 domain, a Rec2 domain, a PAM-interacting domain, a RuvC domain, a bridge helix, and/or a Nuc domain of the first Type V CRISPR-Cas effector protein.

12. The engineered protein of claim 11, wherein the engineered protein comprises the Rec1 domain and the Rec2 domain and the heterologous polypeptide is between the Rec1 domain and the Rec2 domain.

13. The engineered protein of claim 1, wherein the engineered protein comprises an amino acid sequence having about 70%, 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or more sequence identity to the amino acid sequence of a wild-type CRISPR-Cas effector protein.

14. The engineered protein of claim 1, wherein the engineered protein comprises an amino acid sequence having about 70%, 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or more sequence identity to any one of **SEQ ID NOs:2-17, 125-132, or 157-168**.

15. An engineered protein comprising:
a first polypeptide that is a first portion of a first Type V CRISPR-Cas effector protein;
a second polypeptide that is a second portion of the first Type V CRISPR-Cas effector protein; and
a heterologous polypeptide that is heterologous to the first Type V CRISPR-Cas effector protein,

wherein the heterologous polypeptide is between the first and second polypeptides and the heterologous polypeptide is positioned in the engineered protein in a location that corresponds to an interdomain linker region of the first Type V CRISPR-Cas effector protein.

16. The engineered protein of claim 15, wherein the interdomain linker region comprises one or more amino acids of amino acid residues 283-293 of **SEQ ID NO:50** or of corresponding amino acid residues for a sequence that is optimally aligned to **SEQ ID NO:50**.

17. The engineered protein of claim 15, wherein first polypeptide comprises all or a portion of a wedge domain and/or a Rec1 domain of the first Type V CRISPR-Cas effector protein; and/or
the second polypeptide comprises all or a portion of a wedge domain, a Rec2 domain, a PAM-interacting domain, a RuvC domain, a bridge helix, and/or a Nuc domain of the first Type V CRISPR-Cas effector protein.

18. The engineered protein of claim 17, wherein the engineered protein comprises the Rec1 domain and the Rec2 domain and the heterologous polypeptide is between the Rec1 domain and the Rec2 domain.

19. The engineered protein of claim 15, wherein the heterologous polypeptide comprises a target strand nickase domain or a portion thereof.

20. The engineered protein of claim 15, wherein the second polypeptide comprises a nuclease domain or a portion thereof.