CLAIMS

1. A CRISPR-associated protein comprising a variant of a Cas12a, wherein the variant of the Cas12a comprises an amino acid sequence selected from the group consisting of SEQ ID NOs.: 472, 473 and 465.

2. The CRISPR-associated protein according to claim 1, wherein the varianSSt of Cas12a consists of SEQ ID NO.: 472.

3. The CRISPR-associated protein according to claim 1, wherein the variant of Cas12a consists of SEQ ID NO.: 473.

4. The CRISPR-associated protein according to claim 1, wherein the variant of Cas12a consists of SEQ ID NO.: 465.

5. A CRISPR ribonucleoprotein complex, comprising:
a guide RNA; and
a CRISPR-associated protein comprising a variant of a Cas12a, wherein the variant of the Cas12a comprises an amino acid sequence selected from the group consisting of SEQ ID NOs.: 472, 473 and 465.

6. The CRISPR ribonucleoprotein complex of claim 5, wherein the variant of the Cas12a consists of SEQ ID NO.: 472.

7. The CRISPR ribonucleoprotein complex of claim 5, wherein the variant of the Cas12a consists of SEQ ID NO.: 473.

8. The CRISPR ribonucleoprotein complex of claim 5, wherein the variant of the Cas12a consists of SEQ ID NO.: 465.

9. A CRISPR-associated protein comprising a variant of the Cas12a— of SEQ ID NO: 462, wherein the variant of the Cas12a comprises an amino acid sequence selected from the group consisting of SEQ ID NOs.: 59-245.

10. A Cas12a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:18-22 and 24-30.

11. A CRISPR-associated protein comprising a fusion polypeptide comprising a Cas12a protein, a nuclear localization signal, optionally an amino acid linker and optionally an affinity tag, wherein the Cas12a protein comprises an amino acid sequence selected from the group consisting of SEQ ID NOs.: 59-245 and wherein the nuclear localization signal comprises an amino acid sequence selected from SEQ ID NOs.: 475, 477, 479, 481 and 483.

12. A CRISPR-associated protein, wherein the CRISPR-associated protein is encoded by a nucleotide sequence selected from the group consisting of SEQ ID NOs.: 489 and 491.

13. A CRISPR-associated protein, wherein the CRISPR-associated protein comprises SEQ ID NO. 493.