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(54) Title: POLYPEPTIDES USEFUL FOR GENE EDITING AND METHODS OF USE

(57) Abstract: Compositions and methods for binding to a target sequence of interest are provided. Compositions include fusion proteins between DNA binding proteins or protein domains and nucleic acid modifying proteins or protein domains. The compositions find use in cleaving or modifying a target sequence of interest, visualization of a target sequence of interest, and modifying the expression of a sequence of interest. Compositions comprise RNA-guided nuclease polypeptides, CRISPR RNAs, trans-activating CRISPR RNAs, guide RNAs, deaminases, and nucleic acid molecules encoding the same. Vectors and host cells comprising the nucleic acid molecules are also provided. Further provided are CRISPR systems for binding a target sequence of interest, wherein the CRISPR system comprises an RNA-guided nuclease polypeptide and one or more guide RNAs. Also provided are deaminases which may be fused to a DNA-binding polypeptide and may be useful for gene editing.



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