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(54) Title: STRATEGIES FOR PRECISION EDITING OF HOMOLOGOUS REGIONS

(57) Abstract: The invention discloses methods for precision editing of a highly homologous region. The method includes identification of a region of interest for precision editing of the homologous regions. A vector construct for expression of a fusion protein specific to the region of interest is obtained. The fusion protein is a gene construct having a sequence for expressing deadCas9 nuclease and a ABE8e base editor for editing at the identified region of interest. One or more vector constructs are created for expression of guideRNA complementary to the region of interest. The gRNA vector construct along with the fusion protein expression vector are transformed into a suitable cell line for precision editing of the highly homologous regions. The invention further discloses another method for precision editing of a highly homologous region by using truncated guideRNAs having a base pair length of 10 -15 nucleotides for precision editing in highly homologous regions.



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