



[See this image and copyright information in PMC](#)

Fig 1 Key discoveries and advances in the development of the CRISPR-Cas9 system.

CRISPR, clustered regularly interspaced short palindromic repeats; Cas, CRISPR-associated; DSBs, DNA double-stranded breaks; crRNAs: CRISPR RNAs; tracrRNA, trans-activating CRISPR RNA; sgRNA, single-guide RNA; dCas9, inactive Cas9; RCas9, RNA-targeting Cas9.