

CrispRGold - Design of efficient CrispR/Cas sgRNA sequences and off-target prediction

Keywords: CRISPR/CAS, gene editing, gene therapy, sgRNA, off-target prediction

INVENTION NOVELTY

MDC scientist developed a web-based software tool to design highly specific sgRNA sequences for CRISPR/Cas-based gene editing.

VALUE PROPOSITION

The design of sgRNA sequences that specifically match the sequence of the target gene is a crucial step and efficiency of CRISPR/Cas genome editing directly depends on sgRNA sequence. CrispRGold, written by MDC scientists, helps to identify the most effective and specific RNA sequences. Furthermore, the tool provides an excellent off-target-prediction feature.

TECHNOLOGY DESCRIPTION

CrispRGold is a sgRNA design tool that searches for optimal sgRNA candidates in given genes or sequences. CrispRGold goes through iterative loops with decreasing stringency to find sgRNAs. The most important criterion for the design is the specificity, which is calculated based on genome-wide alignments of each candidate sgRNA and subsequent analysis of the mutation distance of each potential offtarget-site. In addition to the specificity, CrispRGold filters for parameters important for the efficiency. The algorithm is based on experimental data, especially regarding the uniqueness of sequences.

COMMERCIAL OPPORTUNITY

Licensing.

DEVELOPMENT STATUS

Market.

FURTHER READING

Efficient CRISPR-mediated mutagenesis in primary immune cells using CrispRGold and a C57BL/6 Cas9 transgenic mouse line. Chu et al., PNAS 2016. PMID: 27729526

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