



The CRISPR-Cas9 gene targeting system currently offers the simplest, most versatile, most precise, and most effective method for genetic manipulation. It has a myriad of potential applications, from medicine to crop seed enhancement. CRISPR-Cas9 has also been adapted to enable high-throughput genome editing and has revolutionized the generation of targeted mutations.

To address the emerging needs of R&D communities, CD Genomics has developed multiple strategies for screening and validating CRISPR-Cas9-based mutations by harnessing amplicon and on/off-target analysis-based next-generation sequencing.

One-stop Solution



CRISPR Screen Sequencing

- sgRNA abundance analysis
- Differential analysis of abundances of sgRNAs
- Functional enrichment analysis

CRISPR Validation

- Validation of CRISPR libraries
- Analysis of target loci
- Analysis of predicted off-target loci

On/Off-Target Analysis

- Mutation detection
- sgRNA homology region detection
- Detection of potential off-target sites in the PAM region
- Statistics on-target indel, off-target rate and editing rate

Highlights

- Multiplex samples for cost-effective results
- Effective workflow and fast turnaround time
- Comprehensive bioinformatics analysis
- Multiple approaches to meet different goals



Method: CRISPR Library Screen Sequencing

Sample Requirements: ~1 µg DNA sample

Sequencing Strategy: Illumina PE150

Data Output: According to the sgRNA numbers

Method: CRISPR Validation Sequencing

Sample Requirements: ~1 µg DNA sample

Sequencing Strategy: Illumina PE150

Data Output: ~1 Gb

Method: Whole Genome Sequencing

Sample Requirements: >1 µg gDNA (for control and case samples)

Sequencing Strategy: Illumina PE150

Data Output: ≥150 Gb for case samples,
≥90 Gb for control samples

Method: GUIDE-Seq

Sample Requirements: Host cell + Cas9 + sgRNA (Plasmid, RNP or RNA format) or Cryo-preserved cells: Cells are transfected with Cas9, sgRNA and dsODN tags. At least 4×10^6 cells

Sequencing Strategy: Illumina PE150

Data Output: ~1 Gb