Services

- Custom Research & Development +
- Custom Production +
- Custom Formulation & Conjugation +
- GTOnco™ Immuno-Oncology Assay Services +
- Analytical Testing & Quality Control +
- CRISPR assisted Gene Editing Solutions -
  - CRISPR assisted Cell Line Development +
  - CRISPR related Delivery Agent Construction +
  - CRISPR based Screening Solutions -
    - Genome-Wide CRISPR Screening
    - CRISPRa Screening
    - CRISPRi Screening
    - Single-Cell CRISPR Screening
    - Custom CRISPR Screening
  - Disease Modeling related Gene Editing
  - Library Design through CRISPR
  - Nuclease Activity Measurement

Single-Cell CRISPR Screening Service

Introduction of Single-Cell CRISPR Screening Service | Workflow of Single-Cell CI | Inquiry Now

Single-cell CRISPR screening is an innovative approach that integrates CRISPR-based gene perturbation with single-cell RNA sequencing (scRNA-seq), allowing researchers to assess the transcriptomic impact of gene editing at single-cell resolution. This technology is particularly valuable for uncovering cellular heterogeneity, understanding complex disease mechanisms, and identifying key regulators of processes like immune response, differentiation, and drug resistance. At **Creative Biolabs**, we combine high-quality sgRNA-barcode library design, efficient lentiviral delivery systems, and state-of-the-art single-cell sequencing platforms with robust data analysis pipelines.

Introduction of Single-Cell CRISPR Screening Service

Single-cell CRISPR screening is a cutting-edge functional genomics technique that combines CRISPR-based gene perturbation (such as CRISPRko, CRISPRa, or CRISPRi) with single-cell RNA sequencing (scRNA-seq). This approach enables researchers to track how individual cells respond to specific genetic modifications at the transcriptomic level, offering a high-resolution view of gene function across thousands of cells simultaneously. Unlike traditional pooled CRISPR screens that rely on bulk readouts like viability or enrichment, single-cell CRISPR screening captures the full gene expression profile of each cell and directly links it to the corresponding genetic perturbation using unique sgRNA barcodes. This allows for a detailed dissection of regulatory pathways and the identification of subtle phenotypic changes that may be hidden in population-level data. A major advantage of this method is its ability to resolve cellular heterogeneity, making it particularly useful for studying complex systems such as tumor microenvironments, immune cell landscapes, and developmental processes. Single-cell CRISPR screening uncovers rare cell states, functional subpopulations, and novel therapeutic targets, paving the way for deeper biological understanding and more precise therapeutic strategies.

Workflow of Single-Cell CRISPR Screening Service

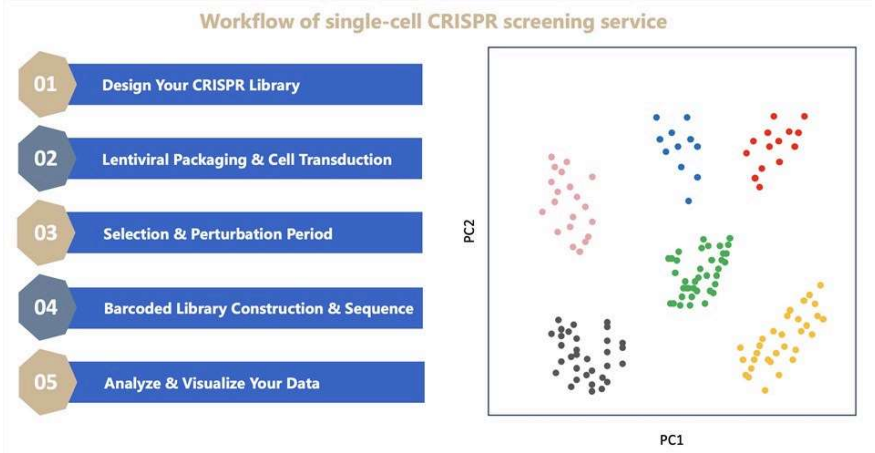

Fig. 1 Workflow of our single-cell CRISPR screening service.

Advantages of Single-Cell CRISPR Screening Service

- **High-Resolution Readout** - Captures full gene expression profiles at the single-cell level, enabling more detailed functional insights than bulk measurements.
- **Reveals Cellular Heterogeneity** - Identifies rare cell types and diverse responses within mixed populations—ideal for complex systems like tumors or the immune system.
- **Precise Genotype-Phenotype Linking** - Directly connects transcriptome of each cell to its sgRNA, allowing clear interpretation of gene function and effect.
- **Rich Functional Insights** - Goes beyond viability to uncover pathway changes, regulatory effects, and differentiation trajectories in response to perturbation.
- **Affordable & Expert-Guided Service** - Offers cost-effective solutions with professional support, ensuring reliable results and a seamless project experience.

How Single-Cell CRISPR Screening Service Can Assist Your Project

At Creative Biolabs, our single-cell CRISPR screening service is built on a highly standardized and quality-controlled workflow—from custom sgRNA library construction and lentiviral packaging, to single-cell capture, high-throughput sequencing, and data analysis. Each step is carefully optimized to ensure efficient gene perturbation, accurate sgRNA tracking, and high-fidelity transcriptomic profiling at the single-cell level. This platform enables you to uncover gene functions with exceptional resolution, particularly in complex or heterogeneous systems. By linking individual gene edits to cell-specific expression profiles, we help identify key regulators, rare cell

subpopulations, functional pathways, and phenotype-associated signatures that traditional pooled screens often miss.

Advanced bioinformatics pipeline from **Creative Biolabs** turns raw single-cell data into actionable insights—supporting studies in oncology, immunology, neurobiology, and stem cell research. Contact us today to learn how our single-cell CRISPR screening service can accelerate your discovery and bring clarity to complex biological questions.

Related Sections

- CRISPRa Screening
- Custom CRISPR Screening
- Genome-Wide CRISPR Screening
- CRISPRi Screening