

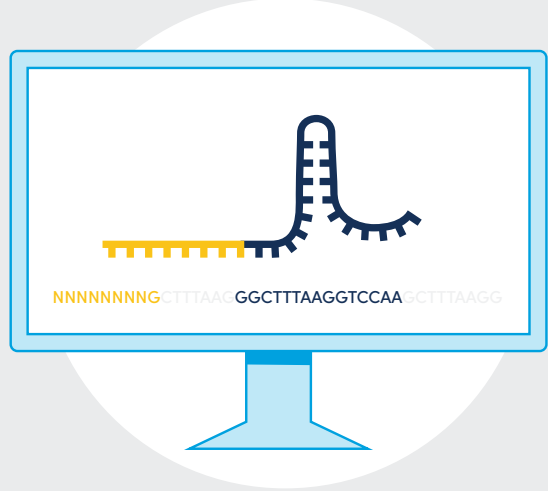
Bringing scale and single cell resolution to functional CRISPR screens

CRISPR screening is a powerful method to investigate how the quantitative expression of certain genes affects complex cellular phenotypes and processes. With Chromium Single Cell CRISPR Screening from 10x Genomics, researchers can profile hundreds of different CRISPR perturbations and detect single-guide RNAs (sgRNAs) with directly linked gene expression phenotypes at single cell resolution. This comprehensive approach empowers researchers to explore the complete transcriptomic effects of genetic perturbations with greater throughput, experimental efficiency, and resolution than bulk CRISPR screening or individual knockouts.

01

Design your CRISPR library

- Select your target genes
- Use 2–5 sgRNAs/gene
- Recover 100–250 cells/guide
- Design your guides with an online tool or select from a validated database

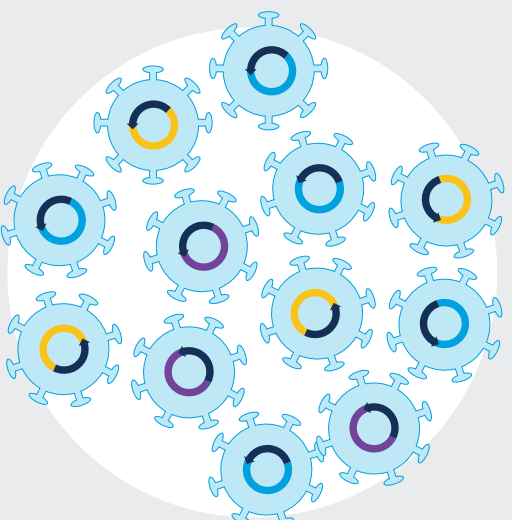


Note: Design guide to contain 10x Genomics capture sequences. Learn more [here](#).

02

Assemble lentivirus

- Clone guides into 10x Genomics compatible vectors
- Load vectors into virus or transfect directly into cells
- Find lentiviral production protocols [here](#)
- Or purchase 10x Genomics compatible CRISPR lentiviral libraries through [Sigma-Aldrich](#)*

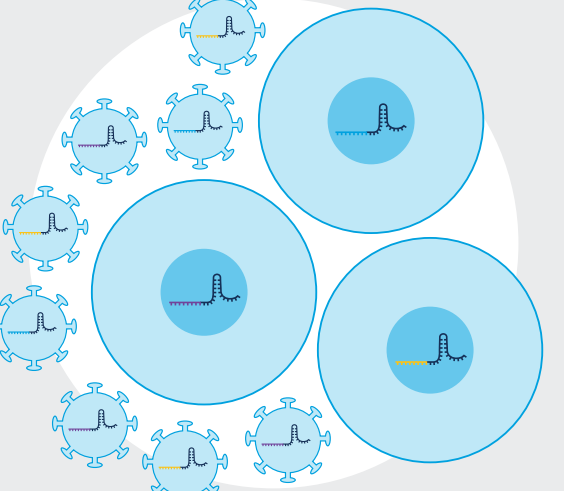


Note: 10x Genomics compatible plasmids can be found [here](#) and [here](#).

03

Infect and select your cells

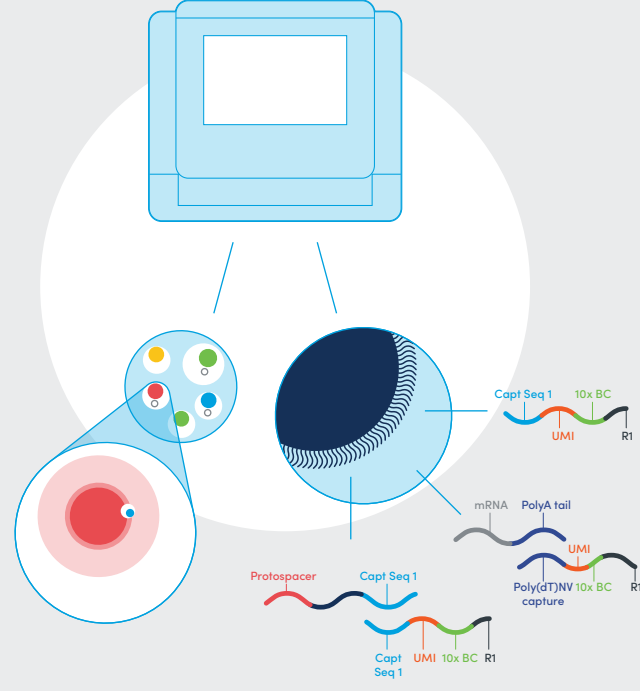
- Infect cells with your lentiviral library to deliver sgRNAs
- Select for cells expressing guides with FACS and/or antibiotic resistance
- Stimulate cells to engage a process or pathway of interest
- Learn more in this [transduction protocol](#)



04

Construct your 10x Genomics libraries


- Load your single cell suspension onto the Chromium Controller
- Captured sgRNAs and cellular mRNA will share a cell barcode, linking guides and transcriptome effects



05

Sequence libraries

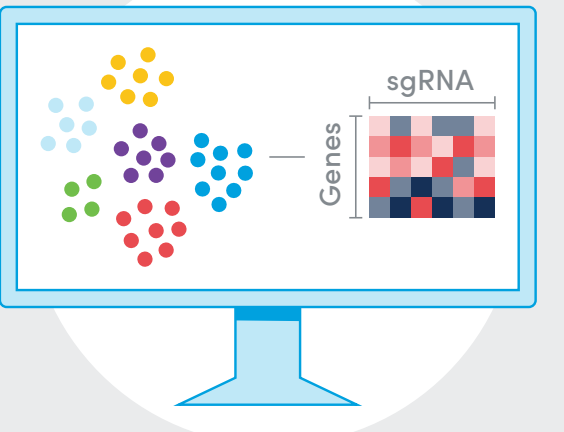
- The Chromium workflow will produce a gene expression and CRISPR (Feature Barcode) library
- Sequence both libraries on a compatible short read sequencer with the Single Cell Gene Expression workflow outlined in our [user guide](#)



06

Discover new insights

- Analyze your single cell data with 10x Genomics easy-to-use software tools, Cell Ranger and Loupe Browser
- Evaluate gene function across different cellular processes, assess genetic contributions to disease, or validate new drug targets



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