CRISPRa and CRISPRi Human Genome-Wide Libraries

CELLECTA

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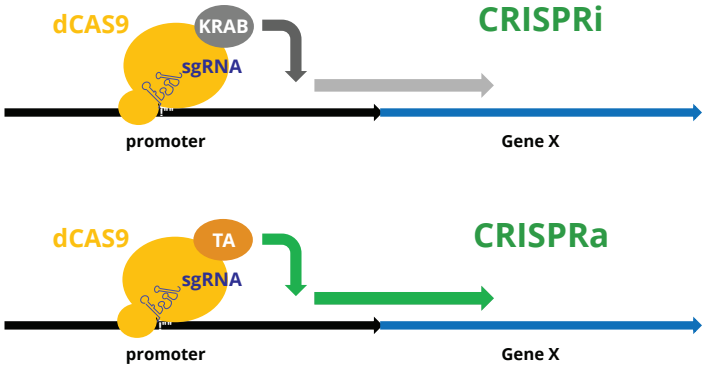
CRISPRa targeted gene activation and CRISPRi targeted gene repression systems provide alternative genetic screening approaches to identify genes required to maintain a biological response (loss-of-function screen) or with CRISPRa, genes whose activation initiate a response (gain-of-function screen). Cellecta offers pre-made, pooled lentiviral libraries targeting all human protein-coding genes for both types of screens.

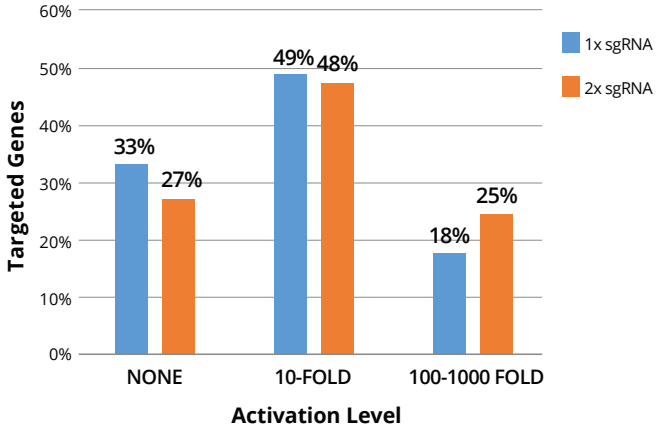
- Pooled genome-wide lentiviral CRISPRa and CRISPRi libraries target almost 19,000 human genes
- Libraries with single sgRNA targeting each gene, and dual-sgRNAs targeting each gene are available
- Available off-the-shelf in plasmid and pre-packaged lentiviral particle formats

CRISPR activator (CRISPRa) and CRISPR interference (CRISPRi) libraries that activate or repress endogenous gene expression which make use of engineered versions of deactivated Cas9 (dCas9) have proven to be effective modulators of gene expression when complexed with repressor (e.g., dCas9-KRAB) or activator (e.g., dCas9-VPH) proteins.



- Cellecta's CRISPRa and CRISPRi human genome-wide sgRNA libraries target all 19,000 human protein-coding genes using 5 sgRNAs per gene
- Dual-guide CRISPRa and CRISPRi libraries use the same 5 sgRNA in dual combination on each of 5 constructs.

Dual-sgRNA vs Single sgRNA CRISPRa Libraries



Increased Gene Activation with Dual-sgRNA.

To test if Cellecta's dual-sgRNA CRISPRa library increases the levels of gene activation as compared to the single-sgRNA CRISPRa library, several hundred cells transduced with either the standard single sgRNA library or the dual-sgRNA library were sorted by FACS into small populations of ca. 10 cells/well. The sgRNA library constructs in the cells were identified from the genomic DNA, and the DriverMap Targeted RNA-Sequencing Assay was used to assess the expression level of all human protein-coding genes. Data was then analyzed to correlate the expression of the targets for the sgRNAs identified in each cell group. The comparison shows that more genes were uninduced with the single-sgRNA library, and correspondingly, more genes showed an induction of greater than 10-fold with the dual-sgRNA CRISPRa library.

For more information, email info@cellecta.com or call +1-650-938-3910

Ordering Information

Catalog #	Description (Human Genome-Wide)	Quantity
KAHGW-106-P	CRISPRa sgRNA Library (plasmid)	200 ug
KAHGW-106-V8	CRISPRa sgRNA Library (virus)	2 x 10^8 TU
KAHGW-106-V9	CRISPRa sgRNA Library (virus)	1 x 10^9 TU
KADHGW-105K-P	CRISPRa Dual-sgRNA Library (plasmid)	200 ug
KADHGW-105K-V8	CRISPRa Dual-sgRNA Library (virus)	2 x 10^8 TU
KADHGW-105K-V9	CRISPRa Dual-sgRNA Library (virus)	1 x 10^9 TU
KIHGW-106-P	CRISPRi sgRNA Library (plasmid)	200 ug
KIHGW-106-V8	CRISPRi sgRNA Library (virus)	2 x 10^8 TU
KIHGW-106-V9	CRISPRi sgRNA Library (virus)	1 x 10^9 TU
KIDHGW-105K-P	CRISPRi Dual-sgRNA Library (plasmid)	200 ug
KIDHGW-105K-V8	CRISPRi Dual-sgRNA Library (virus)	2 x 10^8 TU
KIDHGW-105K-V9	CRISPRi Dual-sgRNA Library (virus)	1 x 10^9 TU