

Cellecta, Inc. Launches the First Commercially Available Dual-sgRNA Libraries for CRISPRa and CRISPRi Genetic Screens

Libraries of pooled lentiviral constructs that express two different sgRNA to all 19,000 human protein-coding genes improve overall gene activation or repression and generate more robust screening results

MOUNTAIN VIEW—(PR Newswire)—June 26, 2019—Cellecta, Inc. today announced the launch of the first commercially available [dual-sgRNA libraries](#) designed for CRISPR activation (CRISPRa) and CRISPR interference/repression (CRISPRi) genetic screens. These new pooled libraries enhance activation or repression of genes to produce more robust results from genetic screens.

With the modified CRISPRa and CRISPRi systems, the standard CRISPR gene knockout capacity has been re-engineered to modulate gene activity. These variations of the standard CRISPR system extend the types of genetic screening possible. For example, CRISPRa can be used to screen for genes that change phenotypes when activated, rather than disrupted. These “gain-of-function” screens are not possible with the standard CRISPR knockout system.

Natural gene expression regulation factors often bind at multiple sites on a promoter to produce a synergistic activation or repression effect. Similarly, Cellecta’s novel dual-sgRNA CRISPRa and CRISPRi libraries enhance the activity of the standard single-sgRNA libraries because each construct expresses two different sgRNA binding distinct sites on the promoter of each gene target. This increases the likelihood that each targeted gene will be activated or repressed above a given threshold when compared to libraries where only a single sgRNA targets a gene promoter.

Donato Tedesco, director of R&D at Cellecta, notes, “We found several examples where targeting more than one sgRNA to the same promoter enhanced expression levels of the target gene using the CRISPRa system, even when one sgRNA by itself had no detectable effect. As a result, it made sense to build a library where each construct has more than one sgRNA targeting each gene. We expected this to increase the overall level of effectiveness for the library and indeed, this is what we saw when we compared the overall expression levels of our single-sgRNA CRISPRa library with the dual-sgRNA version.”

Over the past few years, many research laboratories have taken advantage of single-sgRNA libraries to perform CRISPRa, CRISPRi and standard CRISPR knockout screens to identify potential therapeutic targets responsible for controlling growth and differentiation, regulating disease development, or other biological responses. The development of the new [dual-sgRNA CRISPRa and CRISPRi libraries](#) extends the range of tools available for functional genetic screening and accelerates the identification of novel targets for therapeutics and biomarker analysis.

About Cellecta:

Cellecta, Inc., a trusted provider of genomic products and services, is an industry leader in RNAi and CRISPR technologies for the discovery and characterization of novel therapeutic targets, and genetic profiling for biomarker discovery. Numerous scientific papers have been published citing

Cellecta's functional genomics portfolio offering gene knockout and knockdown screens, custom and genome-wide RNAi and CRISPR libraries, cell engineering, RNAi and CRISPR construct services, and mutation and expression profiling of disease samples.

Cellecta, Inc. is headquartered in Mountain View, California. Further information about the company and its functional genomic products and services may be found online at www.cellecta.com

Cellecta, Inc.

Paul Diehl, 650-938-4050
pauld@cellecta.com

or

Media:
Ruth Mercado, 650-938-3910
rmercado@cellecta.com