

Control Lentiviral Activation Particles: sc-437282

BACKGROUND

The Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) and CRISPR-associated protein (Cas9) system is an adaptive immune response defense mechanism used by archaea and bacteria for the degradation of foreign genetic material. This mechanism can be repurposed for other functions, including genomic engineering for mammalian systems, such as gene knock-out (KO) (1,2) and gene activation (3-6). CRISPR Activation Plasmid products enable the identification and upregulation of specific genes by utilizing a D10A and N863A deactivated Cas9 (dCas9) nuclease fused to a VP64 activation domain, in conjunction with sgRNA (MS2), a target-specific sgRNA engineered to bind the MS2-P65-HSF1 fusion protein (6). This synergistic activation mediator (SAM) transcription activation system provides a robust system to maximize the activation of endogenous gene expression (6).

REFERENCES

1. Cong, L., et al. 2013. Multiplex genome engineering using CRISPR/Cas systems. *Science* 339: 819-823.
2. Mali, P., et al. 2013. RNA-guided human genome engineering via Cas9. *Science* 339: 823-826.
3. Maeder, M.L., et al. 2013. CRISPR RNA-guided activation of endogenous human genes. *Nat. Methods* 10: 977-979.
4. Hsu, P., et al. 2014. Development and applications of CRISPR-Cas9 for genome editing. *Cell* 157: 1262-1278.
5. Van der Oost, J., et al. 2014. Unraveling the structural and mechanistic basis of CRISPR-Cas systems. *Nat. Rev. Microbiol.* 7: 479-492.
6. Konermann, S., et al. 2014. Genome-scale transcriptional activation by an engineered CRISPR-Cas9 complex. *Nature*. E-published.

PRODUCT

Control Lentiviral Activation Particles is a SAM transcription activation system designed to be a negative control for CRISPR/dCas9 Lentiviral Activation Particles.

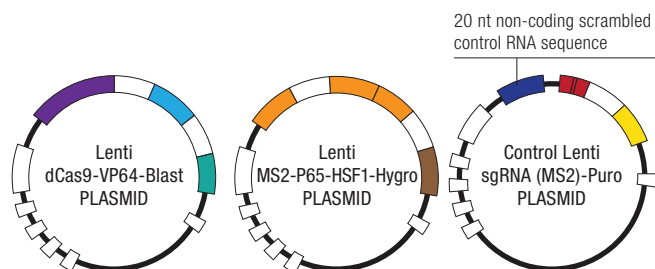
Control Lentiviral Activation Particles contains the following SAM activation elements: a deactivated Cas9 (dCas9) nuclease (D10A and N863A) fused to the transactivation domain VP64, an MS2-p65-HSF1 fusion protein, and a non-specific 20 nt guide RNA. It also contains the blasticidin, hygromycin and puromycin resistance genes. The resulting SAM complex does not recognize nor bind any specific sequence within the genomic DNA, and does not activate transcription of any specific gene. Each vial contains a total of 200 μ l of transduction-ready, high-titer Control Lentiviral Activation Particles.

STORAGE

Store Control Lentiviral Activation Particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

Control Lentiviral Activation Particles is recommended as a negative control for evaluating the efficacy and specificity of target-specific Lentiviral Activation Particle products. Suitable as a control for all LAC and LAC-2 products.



SUPPORT REAGENTS

For optimal reaction efficiency with Lentiviral Activation Plasmid products, Santa Cruz Biotechnology's UltraCruz[®] Transfection Reagent: sc-395739 (0.2 ml) and Plasmid Transfection Medium: sc-108062 (20 ml) are recommended. Hygromycin B solution: sc-29067 (1 g), Blasticidin S HCl solution: sc-495389 (1 ml) and Puromycin dihydrochloride: sc-108071 (25 mg) are recommended for selection.

RESEARCH USE

The Control Lentiviral Activation Particles is considered a "Licensed Product" and is to be used in accordance with the Limited License stated on www.scbt.com/limitedlicense.

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