Product Specification Sheet

Product Name	LDLR-KO gRNA1, gRNA2 and gRNA3
Description	Gene editing technologies give scientists the ability to change an organism's genetic material. Recently, CRISPR-Cas9 becomes a popular tool, as it is a specific, efficient and versatile gene-editing technology. The system consists of two parts: the Cas9 enzyme and a guide RNA. Cas9 endonuclease acts as a molecular scissor and uses CRISPR sequences as a guide to recognize and cleave specific strands of DNA that are complementary to the CRISPR sequence. The guide RNA consists of a pre-designed RNA sequence (about 20 bases long) located within a longer RNA scaffold. The scaffold part binds to DNA and the guide RNA 'guides' Cas9 to the complementary region in the gene to be edited. This allows the Cas9 to cut at the right site in the genome. Hence, by manipulating the nucleotide sequence of the guide RNA, the CRISPR-Cas9 system could be programmed to target any DNA sequence for cleavage. CRISPR-Cas9 technique has a wide variety of applications such as in basic biomedical research, development of biotechnological products, and treatment of medical conditions that have a genetic component. In our vector, we have U6 promoter driving a single guide RNA expression while CBh promoter transcribe SpCas9 gene linked to Puromycin selection marker by T2A.
Catalog Number	G004a, G004b, G004c
Size	10 µg at 0.5 µg/µL in TE
Shipping	Room temperature
Storage and Stability	Store at -20°C immediately upon receipt. This product is stable for 6 months when stored as directed.
Quality Control	This plasmid is sequence verified.
Safety Precaution	Remember that you will be working with samples containing infectious virus. Follow the recommended NIH guidelines for all materials containing BSL-2 organisms. The ALSTEM Lentiviral Expression System is designed to minimize the chance of generating replication-competent lentivirus, but precautions should still be taken to avoid direct contact with viral supernatants.
Restricted Use	For Research Use Only. Not for use in diagnostic or therapeutic procedures.

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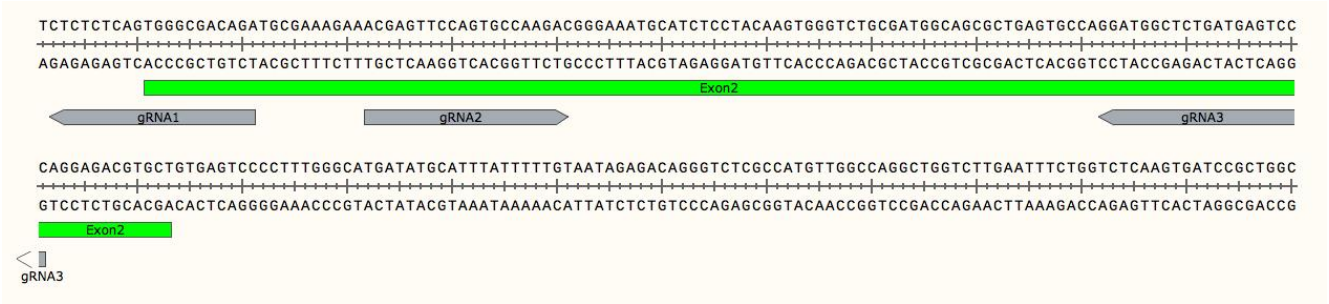
Vector Information

The sgRNA expressing vector contains SpCas9 gene driven by CBh promoter and the 20 nucleotides guide RNA sequences are transcribed by U6 promoter with an invariant gRNA scaffold immediately following the guide RNA sequences. The guide sequences of LDLR are: gRNA1: TCTGTCGCCCACTGAGAGAG, gRNA2: ACGAGTTCCAGTGCCAAGAC, gRNA3: GGGACTCATCAGAGCCATCC.

Figure 1. Partial vector map showing the promoters for gRNA and SpCas9 gene.

Figure 2. Sites where the gRNAs complementary sequences will bind to Exon 2 of LDLR gene.



Note: Bacterial culture of pLenti vectors should be done in medium containing ***10 μg/mL*** *Ampicillin. For maximal plasmid yield and quality, we recommend Stbl3 competent cells (Invitrogen).*

IMPORTANT NOTICE

Store the vial at -20°C immediately upon receipt.

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