**Na⁺/K⁺-ATPase α₁ CRISPR/Cas9 KO Plasmid (h): sc-400239**

**BACKGROUND**

The Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) and CRISPR-associated protein (Cas9) system is an adaptive immune response defense mechanism used by archea and bacteria for the degradation of foreign genetic material [4,6]. This mechanism can be repurposed for other functions, including genomic engineering for mammalian systems, such as gene knockout (KO) [1,2,3,5]. CRISPR/Cas9 KO Plasmid products enable the identification and cleavage of specific genes by utilizing guide RNA (gRNA) sequences derived from the Genome-scale CRISPR Knock-Out (GeCKO) v2 library developed in the Zhang Laboratory at the Broad Institute [3,5].

**REFERENCES**


**CHROMOSOMAL LOCATION**

Genetic locus: ATP1A1 (human) mapping to 1p13.1.

**PRODUCT**

Na⁺/K⁺-ATPase α₁ CRISPR/Cas9 KO Plasmid (h) is designed to disrupt gene expression by causing a double-strand break (DSB) in a 5’ constitutive exon within the ATP1A1 (human) gene.

Na⁺/K⁺-ATPase α₁ CRISPR/Cas9 KO Plasmid (h) consists of a pool of 3 plasmids, each encoding the Cas9 nuclease and a target-specific 20 nt guide RNA (gRNA) designed for maximum knockout efficiency. Each vial contains 20 µg of lyophilized CRISPR/Cas9 Plasmid DNA. Suitable for up to 20 transfections. Also see Na⁺/K⁺-ATPase α₁ HDR Plasmid (h): sc-400239-HDR for selection of cells containing a DSB induced by Na⁺/K⁺-ATPase α₁ CRISPR/Cas9 KO Plasmid (h).

**STORAGE AND RESUSPENSION**

Store lyophilized plasmid DNA at 4°C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at 4°C for short term storage or -20°C for long-term storage. Avoid repeated freeze thaw cycles.

Resuspend lyophilized plasmid DNA in 200 µl of the provided ultrapure, sterile, DNase-free water. Resuspension of the plasmid DNA makes a 0.1 µg/µl solution in a 10 mM TRIS EDTA, 1 mM EDTA buffered solution.

**APPLICATIONS**

Na⁺/K⁺-ATPase α₁ CRISPR/Cas9 KO Plasmid (h) is recommended for the disruption of gene expression in human cells.

**SUPPORT REAGENTS**

For optimal reaction efficiency with CRISPR/Cas9 KO Plasmids, Santa Cruz Biotechnology’s UltraCruz® Transfection Reagent: sc-395739 (0.2 ml) and Plasmid Transfection Medium: sc-108062 (20 ml) are recommended. Control CRISPR/Cas9 Plasmid: sc-418922 (20 µg) negative control is also available.

**GENE EXPRESSION MONITORING**

Na⁺/K⁺-ATPase α₁ (C464.6): sc-21712 is recommended as a control antibody for monitoring of ATP1A1 (human) gene expression prior to and after knockout by Western blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

**RESEARCH USE**

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