



## Cas9 Null Mutant Protein

Store at -20 °C

Cat. No.	Description	Concentration	Quantity
K040	Cas9 Null Mutant Protein	1000 nM	50 pmol (50 µl)
K140	Cas9 Null Mutant Protein	10 µM	250 pmol (25 µl)

### Product Description

The Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)/Cas9 system is the latest RNA-guided, endonuclease tool in genome editing which allows for very specific genomic disruption and replacement.

The Cas9 Null Mutant Protein is created by mutating both cleavage domains of the wild type Cas9 (D10A and H840A). Such a Cas9 protein retains its ability to bind to genomic DNA through gRNA:genomic DNA base pairing, however, unlike Cas9 Nuclease and Cas9 Nickase, where permanent gene disruption can be achieved, the Cas9 Null Mutant does not introduce any genome modifications. Therefore, this protein can provide a useful negative control for CRISPR experiments. In addition, binding of the Null Mutant can act as a roadblock to hinder transcription, thus offering a useful tool to achieve reversible knock-down of gene expression.

The Cas9 nuclease from the bacteria *Streptococcus pyogenes*, abbreviated spCas9, is the most commonly used Cas9 variant. The reason for spCas9 popularity is two-fold. First the spCas9 PAM sequence is 5'-NGG, which is highly abundant in the genome allowing virtually any gene to be targeted. The spCas9 enzyme also has on average a higher efficiency *in vivo* compared to other variants.

### Kit Components

Part No.	Product Components	50 pmol
K040	Cas9 Null Mutant Protein	50 µl
K000	10X Cas9 Reaction Buffer	1.25 mL
Part No.	Product Components	250 pmol
K140	Cas9 Null Mutant Protein	25 µl
K000	10X Cas9 Reaction Buffer	1.25 mL

### Product Source

Recombinant *E. coli*.

### Storage Conditions

Store all components at -20 °C. Avoid repeated freeze-thaw cycles of all components to retain maximum performance. All components are stable for 1 year from the date of shipping when stored and handled properly.

### Enzyme Storage Buffer

10 mM Tris-HCl (pH 7.4), 0.1 mM EDTA, 1 mM DTT, 300 mM NaCl, and 50% (v/v) Glycerol.

### 10X Cas9 Reaction Buffer Components

200 mM HEPES, 50 mM MgCl<sub>2</sub>, 1 M NaCl, 1 mM EDTA, pH 6.5.

### Reaction Conditions

Use 1X Cas9 Reaction Buffer and incubate at 37 °C.