

Cas9-Dead-NLS protein

Product	Cat#	Package size
Cas9-Dead-NLS protein (500ng/μL)	S5315.0010	10μg
Cas9-Dead-NLS protein (500ng/μL)	S5315.0020	20μg
Cas9-Dead-NLS protein (500ng/μL)	S5315.0040	40μg
Cas9-Dead-NLS protein (500ng/μL)	S5315.0100	100μg

Product description

Cas9-Dead-NLS was produced in *E. Coli*, expressing the *Streptococcus pyogenes* Cas9 gene with mutations, resulting in two amino-acid substitutions in the protein: D10A and H840A. These substitutions render the Cas9 protein catalytically inactive or “dead”. In addition, Cas9-Dead-NLS contains the nuclear localization sequence (NLS) PKKKRKV from the Simian virus 40.

Cas9-Dead-NLS is over 95% pure based on Coomassie Blue detection after SDS polyacrylamide gel electrophoresis.

Product Specifications

Concentration:	500ng/μL
Molecular weight:	160 kDa
Storage buffer:	20mM HEPES, pH7.25, 150mM KCl, 1mM DTT

Application

Fusion with a nuclear localization signal (NLS) directs the Cas9 protein to the nucleus. Complexed with single-strand guide (g)RNA, Cas9-Dead-NLS binds DNA, if two conditions are met:

- 1.) The protospacer adjacent motif (PAM) sequence NGG is present.
- 2.) Immediately upstream of the PAM, the sequence on the opposite DNA strand is complementary to the 20-nt targeting sequence of the gRNA.

Possible applications include repression of transcription. By directing the Cas9-Dead/gRNA complex to the promoter of a gene, the transcription of the mRNA is sterically blocked (Cell (2013) 152: 1173-1183; Cell (2013) 154: 442-451).

Delivering Cas9 as a ribonucleoprotein (= complexed with gRNA) to the cells is less toxic, leads to fewer off-target effects and yields higher insertion/deletion frequencies than plasmid- and mRNA-based approaches (Nat. Biotechnol. (2015) doi: 10.1038/nbt.3290; J. Biotechnol. 208 (2015): 44-53; Genome Res. 24 (2014): 1012-1019).

Cas9-Dead-NLS is delivered in storage buffer (500ng/μL)

Usage of the 10X Reaction buffer: For *in vitro* experiments, the Cas9- Dead-NLS is incubated with the gRNA and the target DNA in 1X Reaction Buffer.

Stability/Storage: Genaxxon bioscience Cas9-Dead-NLS protein is shipped on wet ice but should be stored at -20°C.

Product Use Limitations

The Cas9-Dead-NLS is developed, designed, and sold for research purposes only. It is not to be used for human, diagnostic or drug purposes or to be administered to humans unless expressly cleared for that purpose by the Food and Drug Administration in the USA or the appropriate regulatory authorities in the country of use. All due care and attention should be exercised in the handling of many of the materials described in this manual.

Safety information

This product does not require a Material Safety Data Sheet because it does neither contain more than 1% of a component classified as dangerous or hazardous nor more than 0.1% of a component classified as carcinogenic. However, we generally recommend, when working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles.

Genaxxon bioscience takes no liability for damage resulting from handling or contact with this product.

More information can be found in the REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND THE COUNCIL or contact Genaxxon bioscience (info@genaxxon.com)

**Related products**

Product	Cat#	Package size
Cas9-NLS-tagRFP protein	S5306	10µg; 20µg; 40µg; 100µg
Cas9-NLS-EGFP protein	S5325	10µg; 20µg; 40µg; 100µg
Cas9-Dead-NLS-EGFP protein	S5316	10µg; 20µg; 40µg; 100µg
Cas9-Nickase-NLS	S5307	10µg; 20µg; 40µg; 100µg
CRISPRfect E Transfektionsreagenz - 35µL	S5306	35µL
NoTarget gRNA (negative control)	P2011	10µg