horizon™
INSPIRED CELL SOLUTIONS

CRISPR gene knockout

Edit-R™ reagent selection guide

CRISPR based gene knockout requires two components: guide RNA and Cas9 nuclease. Horizon offers a diverse selection of format options for both. The most appropriate formats will depend on your particular application and cell type. Use this guide to determine the best options for your experiment.

Guide RNA format selection

New

	Synthetic crRNA	Synthetic sgRNA	Lentiviral sgRNA*	Lentiviral All-in-one sgRNA*
Predesigned guide RNA **guaranteed to edit** the target gene	X	X	X	X
DNA-free - eliminates risk of DNA integration	X	X		
Simplified editing - combine sgRNA + Cas9 nuclease expression into a single vector				X
Recommended for difficult-to-transfect cells			X	X
Enrichment options			PURO	PURO GFP
Delivery methods	DF	DF		
Single component guide format		X	X	X
Predesigned guides for human and mouse genes	X	X	X	X
Custom designed guides available	X	X	X	X
Whole genome and gene family libraries available	X	X	X	
Automation friendly for high throughput applications	X	X		

*Available as ready-to-use viral particles or renewable glycerol stocks.

GFP GFP Electroporation DF DharmaFECT transfection Viral transduction PURO Puromycin

Edit-R guarantee

All formats of Edit-R predesigned guide RNA are fully guaranteed to edit the gene of interest. If the positive control works, but your experimental guide does not, then Horizon will replace the guide with a different design at no cost.

Cas9 nuclease format selection

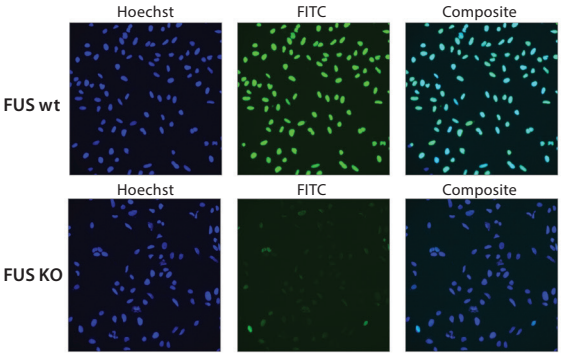
Cas9 nuclease expression may be transient, constitutive, or even inducible.

	Cas9 protein	Cas9 mRNA	Lentiviral Cas9 particles
DNA-free - eliminates risk of DNA integration	X	X	
Complex with synthetic guide RNA - no need to co-transfect	X		
Recommended for difficult-to-transfect cells			X
Inducible expression			X
Multiple promoter options			X
Creates stable cell lines			X
Enrichment options		GFP	GFP mKate2 Blast

GFP GFP mKate2 mKate2 Blast Blasticidin

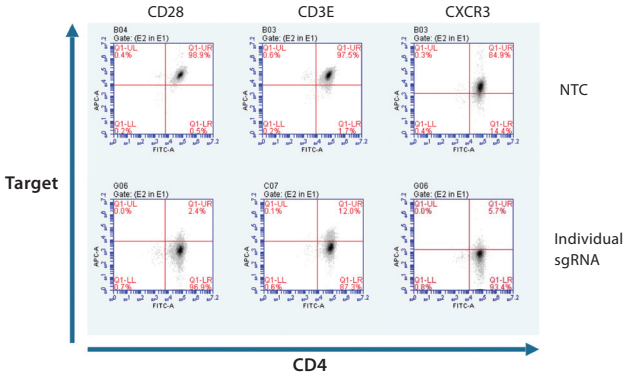
Edit-R knockout data

Functional knockout of FUS in U2OS cells



Lentiviral Cas9 was used to constitutively express Cas9 nuclease under the CAG promoter and Edit-R pooled synthetic sgRNA was transfected using DharmaFECT transfection reagent. Cells were then stained for FUS expression using FITC conjugated antibody.

Functional protein knockouts in CD4+ T cells



Primary human CD4+ T cells were nucleofected with Cas9 RNP using an individual predesigned synthetic sgRNA per gene target. Functional knockout was assessed as a percent of cells not expressing the target gene by FACS analysis.

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CRISPR knockout for functional genomic screening

Screen your own knockout library or have the Horizon experts run a screen for you.

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