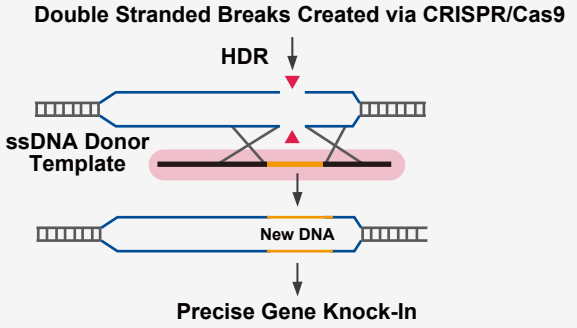
Single-Stranded DNA Synthesis

Use the purest ssDNA on the market to obtain the BEST CRISPR KI efficiency and accuracy!

GenScript now offers high quality, sequence verified ssDNA for maximizing the editing efficiency of your CRISPR homology directed repair (HDR) based gene knock-in experiments.



Why Use ssDNA as CRISPR Gene Knock-In HDR Templates?

- ✓ High editing efficiency
- ✓ Lower cytotoxicity
- ✓ Reduced off-target integration
- ✓ Increased editing accuracy
- ✓ Ideal for editing primary cells & stem cells
- ✓ Ideal for developing transgenic animal models

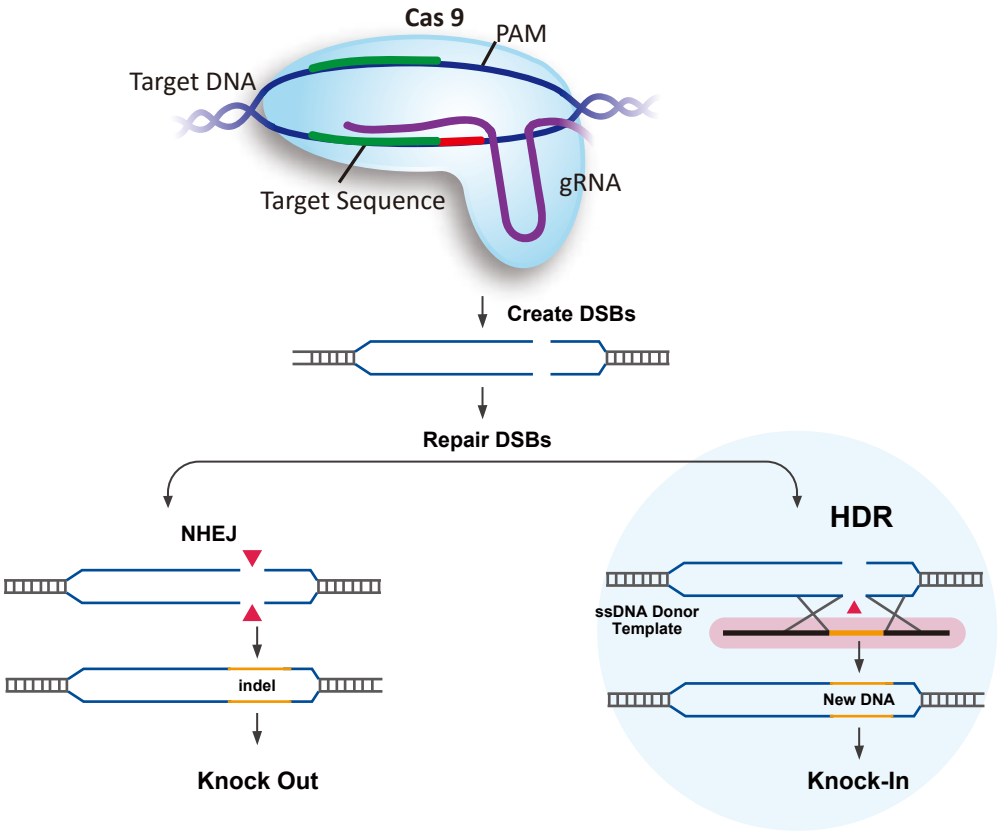
What GenScript Offers

- ✓ **Sequence verification** by sanger sequencing the **final ssDNA product**
- ✓ No harsh chemicals, enzymatic approach for ensuring **non-detectable levels of dsDNA and minimum DNA base damage**
- ✓ **Up to 20 ug delivery quantity** allowing for flexible study design
- ✓ Free life-time gene template storage supporting **faster and more cost-effective re-orders**
- ✓ **Expertise & 16+ Years experience** in synthesizing difficult genes as ssDNA templates

Length (Nucleotides)	Quantity	Price	Delivery Time (Business Days)
151-500	3 ug	$400	15-18
	5 ug	$550	
	10 ug	$800	
	20 ug	$1300	
	>20 ug	Inquiry	
501-3000	3 ug	$0.8/nt	18-23
	5 ug	$1/nt	
	10 ug	$1.3/nt	
	20 ug	$1.9/nt	
	>20 ug	Inquiry	
3000-5000	Inquiry	Inquiry	Inquiry

GenScript
Make Research Easy

Mechanism of CRISPR HDR Mediated Gene Knock-In



CRISPR/Cas9 technology is commonly used to create precise double stranded breaks (DSBs) at target DNA sites. The guide RNA (gRNA) recognizes the protospacer adjacent motif (PAM) sequence on the target DNA after forming complex with Cas9, then Cas9 exerts its endonuclease function to cause DSBs. This triggers two mechanisms for repair: one is non-homologous end-joining (NHEJ), which introduces mutations in the DSB site. The other mechanism is homology directed repair (HDR) which enables the donor DNA to be inserted at the break site and create gene knock-ins.

Double-stranded DNA (dsDNA) was traditionally used as HDR donor DNA templates, however, recent studies demonstrated that single-stranded DNA (ssDNA or ssODN) is the best HDR templates for CRISPR based gene insertion, replacement, and correction. When compared to double-stranded DNA donors, ssDNAs demonstrated significantly improved editing efficiency and specificity, as well as reduced off-target integration, especially in editing primary cells, stem cells, and developing transgenic animal model.

To make ssDNA more readily available for cutting-edge researchers, GenScript has developed proprietary enzymatic approaches for producing ssDNAs with non-detectable levels of dsDNA and minimum DNA base damage. All final deliverables are 100% sequence verified and delivered with flexible quantity options, making CRISPR based gene knock-in easier than ever!

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