Sigma-Aldrich®
Lab & Production Materials

Data Sheet

Model Organism Engineering with SygRNA® Guides

Mouse models are a vital tool for investigating human disease, but creating them is an expensive and labor-intensive process. SygRNA® guides are designed to produce optimal editing results with minimum toxicity in your valuable mouse embryo applications (**Figure 1**). Comparison of single guide RNAs (sgRNA) from several leading providers shows SygRNA® guides deliver superior cutting efficiency (**Figure 2**). Importantly, there was no increased toxicity to the embryo's survivability (**Figure 3**). Experiments were conducted in parallel and across multiple replicates by a prominent, independent mouse core facility. **Collectively, the data shows SygRNA® guides deliver unrivaled gene editing performance while preserving maximum survivability in engineered mouse embryos.**

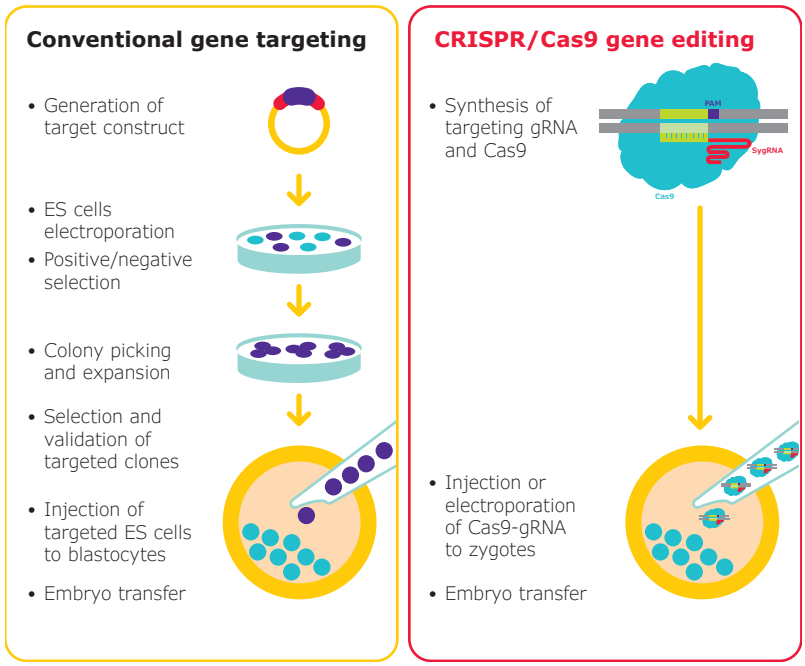


Figure 1. Comparison of conventional gene targeting and CRISPR editing. Gene editing in mouse embryos is traditionally a long process, however, RNP-based editing with CRISPR reduces the complexity. Using SygRNA guides, mouse models can be generated rapidly, for nearly any target. SygRNA® guides are suitable for both microinjection and electroporation of embryos.

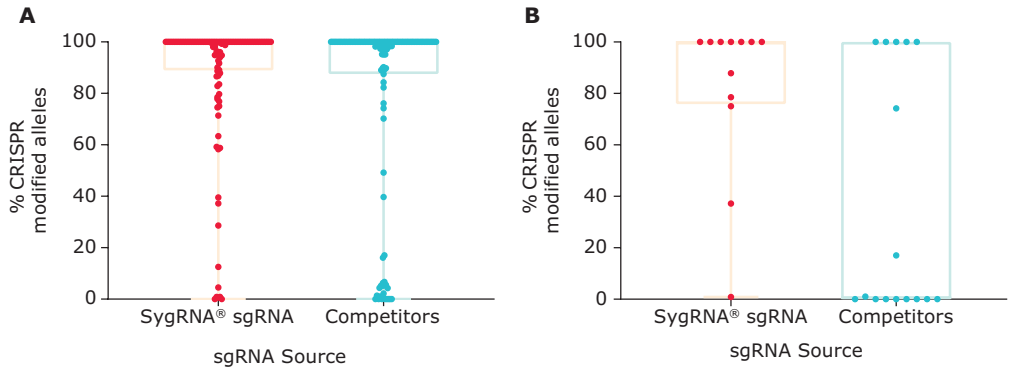
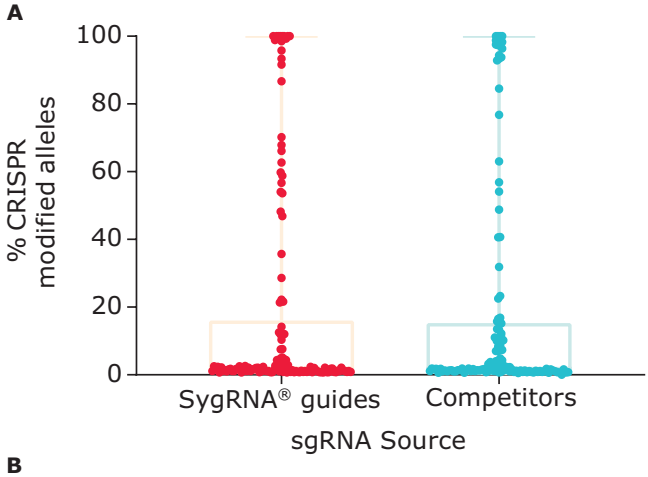


Figure 2. SygRNA® produces superior editing efficiency. (A) Mouse embryos electroporated with SygRNA® guides (red) and competitor single guide RNAs. SygRNA® guides modified 88% of alleles compared to 79% for competitors. Identical gRNA sequences at 8 different genomics locations were used for each target. (B) Same comparison for a single gene target (Dhx37).

A



B

	Total Embryos Injected	Embryos Surviving to Blastocytes Stage	Percentage Survived
SygRNA® sgRNAs	277	139	**50.1%**
Competitor sgRNAs	275	126	**45.8%**

Figure 3. Comparison of mouse microinjection data using SygRNA® guides and competitor sgRNAs. While (A) the level of gene editing confirmed by NGS is comparable between SygRNA® and competitor materials, (B) embryos injected with SygRNA® guides were more likely to survive to the blastocyst stage than embryos injected with identical guide RNAs from competing suppliers.

Custom Quantities and Modifications

SygRNA® synthetic sgRNAs are available in a standard quantity of 3 nmol of HPLC purified material, either unmodified or with stabilizing modifications at the 5′ and 3′ ends. Larger quantities and customized modification patterns are available upon request. Please contact us for additional information.

Product Guarantee

We are so confident in the performance of our SygRNA® products, that we fully guarantee the quality and performance of any gRNA we produce, including custom sequences. If your sgRNA does not yield detectable cleavage at the intended target site, we will provide you a one-time replacement, free of charge.

To qualify for this guarantee, please send an image or sequencing data from a single experiment demonstrating detectable cleavage using one of our positive controls, side-by-side with the negative results from your SygRNA® guide.

To receive your replacement, simply email oligotechserv@milliporesigma.com and include sample data from a representative experiment (T7E1, TIDE, or NGS).

Product Availability

Product Description	Format	Quantity	Purification	Modifications	Ordering
Predesigned Synthetic RNA – single guide RNA (sgRNA)	sgRNA	2 nmol, 5 nmol	HPLC	Unmodified, 3x MS*	**VC40003**
Custom Synthetic RNA – single guide RNA	sgRNA	3 nmol, custom	HPLC	Unmodified, 3x MS*	**VC40003**
Predesigned Synthetic RNA - crRNA	crRNA	2 nmol, 5 nmol	HPLC, desalted	Unmodified, 3x MS*	**VC40003**
Custom Synthetic RNA – crRNA	crRNA	2 nmol, 5 nmol, custom	HPLC, desalted	Unmodified, 3x MS*	**VC40003**
Standard TRACR RNA for S. pyogenes Cas9	tracrRNA	5 nmol	HPLC	Unmodified	**TRACRRNA05N**
Modified TRACR RNA for S. pyogenes Cas9	tracrRNA	5 nmol	HPLC	3x MS*	**TRACRRNAMOD**
Custom TRACR RNA	tracrRNA	5 nmol, custom	HPLC	Unmodified, 3x MS*	**REQUEST**
96 or 384 well-plates	crRNA, sgRNA	Custom (inquire)	HPLC, desalted	Unmodified, 3x MS*	**CUSTOM**

*Chemically modified synthetic gRNAs containing stabilizing 2′-O-methyl and phosphorothioate linkages

Learn about the many products we can provide to help take your genome engineering & modulation experiments Beyond the Bench by visiting:

SigmaAldrich.com/AdvancedGenomics

SigmaAldrich.com/CRISPR

For custom requests visit: **SigmaAldrich.com/CRISPRrequest**

To place an order or receive technical assistance in the U.S. and Canada, call toll-free 1-800-645-5476
For other countries across Europe and the world, please visit: **EMDMillipore.com/offices**
For Technical Service, please visit: **EMDMillipore.com/techservice**

MilliporeSigma
400 Summit Drive
Burlington, MA 01803

EMDMillipore.com

Lit. No. MS_DS6130EN
31791
03/2021